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BIRDS and NATURE

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IN NATURAL COLORS

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1903

A MONTHLY SERIAL

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FORTY ILLUSTRATIONS BY COLOR PHOTOGRAPHY

A GUIDE IN THE STUDY OF NATURE

TWO VOLUMES EACH YEAR

VOLUME XIV

JUNE, 1903, TO DECEMBER, 1903

EDITED BY WILLIAM KERR HIGLEY

CHICAGO

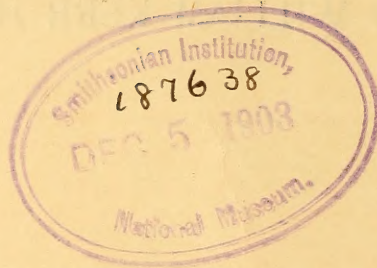
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1903

BIRDS AND NATURE
IN NATURE
A MUMFORD SERIAL
FIRST PUBLISHED IN 1903
BY A. W. MUMFORD

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The beautiful is as useful as the useful.—*Victor Hugo.*

BIRDS AND NATURE

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JUN 4 1903

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BIRDS AND NATURE.

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No. 1

IN JUNE.

Where prairies, deep with grass in June,
Roll grandly to the rim,
The cattle bells' recurring rune,
That gently shakes her tussock slim,
Startles the nesting curlew there,
Till, sweetly sure, she says: Strong ones!
Their giant hoofs will still forbear
To crush my home while summer runs.

Where berry bushes fruit in June
Upon the mountain's sunny side,
The black bear feasts and, opportune,
The gray opossums come and glide
Below him standing straight and tall:
They cannot climb the briery bush,
But glean, if haply berries fall,
And gently purr, and softly push.

Where binding-grasses thrive in June,
And link with wide salt-meadows long,
The Poet weaves in high commune
With sea and sky, the Mystic's song;
As creeping sands are stayed, our griefs
Are foiled—he sings: Faint not, but strive;
Trust in the Future's great reliefs,
And feel 'tis sweet to be alive.

—ELIZA WOODWORTH.

THE SWAMP SPARROW.

(*Melospiza georgiana.*)

Though the range of the Swamp Sparrow covers the whole of the northern portion of North America, it nests only in the Northern United States and British America. There this timid Sparrow seeks a site for his home in the "deep recesses of marshy thickets, environed with a canopy of tangled foliage, whose treacherous quagmire abounds in a luxurious growth of wild grasses." The nest is placed on the ground and usually in low places, where it is sheltered by a tussock of grass. In its construction, grasses, weed stems, leaves and frequently bark fibers, are woven together, and it is lined with finer materials of the same kind, often with the addition of some animal hair or vegetable down.

Because of its retiring habits during the breeding season, its nest, as well as the bird itself, are not easily found. Except in the fall, when it is prone to gather in flocks, it is usually seen alone while wending its way through the rank herbage of the swamp. Regarding its habits while wintering in the South, Mr. Chapman says the "Swamp Sparrows frequently belie their name, and I have often found numbers of them in dry old fields of broom sedge." Fields with scattered patches of weeds are also favorite resorts. But as the breeding season approaches, and the warmer atmosphere of the coming spring draws the birds northward, the habit of the Swamp Sparrow changes and the swamp becomes its home. Here it raises its young, finds its food, and sings its simple, sweet song, every note of which indicates a happy disposition. Singing is a part of its nature, and even "a suggestion of the bird's watery home shows itself in the liquid quality of its simple, sweet note, stronger and sweeter than the chippy's, and repeated many times almost like a trill that seems to trickle from the marsh in a lit-

tle rivulet of song." Well do the words of the poet apply to this dainty little bird, which has not inaptly been called the Swamp Song Sparrow:

And all ye little sparrow birds,
Put on your daintiest frills;
And fill your bosoms full of notes,
Of quavers, and of trills.

Not infrequently, an observer may be regaled with the song of this Sparrow as it flies up from its reedy home and perches on some low branch, where, like its sweet voiced relative, the song sparrow, it "expands its tail feathers and gives forth a very sprightly trill, that echoes through the swampy thicket with an effect which, once noticed and identified with the performer, is not likely to be ever mistaken." Though to many listeners, its song, though loud, sweet and clear, is plaintive; to others it is sprightly rather than pathetic, and Dr. Brewer hears in the song "a peculiar ventriloquistic effect, as if the performer were at a much greater distance than he really is."

The Swamp Sparrow is the handsomest of the smaller sparrows and its habits are quite like those of the better known song sparrow—that delightful bird of the parks and door yards. From the song sparrow, the bird of our illustration may be easily distinguished by the even color of the plumage of the breast and the underside of the body, which is entirely free from dark colored streaks and a dark-brown spot in the middle of the breast.

As the Swamp Sparrow seldom leaves its home in the marsh to seek food on cultivated grounds, it is, perhaps, of less economic value than many other sparrows. Dr. Judd has suggested that birds having the habits of the Swamp Sparrow, if they figure at all in the rural economy, act simply as a check on



SWAMP SPARROW.
(*Melospiza georgiana*).
Life-size.

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certain insects which might otherwise become abundant and spread from the swamp to farm lands. In the examination of seventy-two stomachs, he found that forty-seven per cent. of the contents consisted of animal matter, nearly all insects, and that the remainder was chiefly seeds. "Although many of the insects eaten by the Swamp Sparrow belong to families generally classed as injurious or beneficial, yet the particular species taken are mainly such as inhabit

only swamps, and so have very little, if any, economic value." Its vegetable food consists almost entirely of the seeds of sedges and other swamp plants.

This beautiful, gentle and harmless little Sparrow may then be looked upon as beneficial to man, for it does not take from him that which is of value, and it adds by its happy and sprightly ways and attractiveness to an otherwise dreary region.

THE HILL ROAD.

Though beautiful the valley roads
That wind along the river,
Where vine grown walls and hedges green
In glowing sunlight quiver;

Though picturesque the woodland ways,
Cool byways, all deserted,
Where fresh with fragrant brake and fern
The darksome trail is skirted;

Though fair and fine all other paths,
One road there is that's calling
Far louder than those quiet ways
Where peace and calm are falling.

The hilltop road that meets the sky
And leads us boldly faring
Against the very roof of things,
Is breeding thoughts of daring.

Oh, roam you roads that suit your will,
My wander loving rover,
But when you'd know the life that's real,
Just tramp the hill road over.

—FRANK FARRINGTON.

A, CRICKET STORY.

The first load of hay had been stowed away in the big red barn when Mead and Melody had finished their breakfast and were ready to ride out to the hay field in the great, wide rack drawn by Topsy and Nell.

"Wait for us, Joe," called Mead to the man who was driving. "Mother says we may spend the day making hay, for you know this is my birthday and I'm seven years old. Sister isn't going to have her music lesson. We're just going to play all day."

"All right, little man," said Joe, as he reached down and lifted Melody safely into the rack. And it was only a moment afterward when Mead had climbed in without any help at all.

The pigs and chickens and even the old turkey gobbler ran hither and thither making way for the hay wagon. Topsy, the sorrel colt, shook her beautiful thick yellow mane and looked as if haymaking was a real pleasure for her.

"Drive through the orchard, Joe, please, that is the nearest way," said Melody, "and we can get some harvest apples." When they got to the big tree near the gate, "Whoa, Topsy," said Joe, and handing the reins to Mead he jumped out. "You stay in the wagon, children, and I'll pick up the apples."

"It was the big wind last night that blew down so many apples," said Melody. A big red one hung on a branch near Topsy's head: "Help yourself, Topsy," said Mead, and just then Topsy reached up and snapped off the apple.

"Nell must have one, too," said Melody. "You'll give her one, won't you, Joe?" So Joe gave Nell an apple which was just as big and red as the one Topsy had picked for herself.

"What is that out in the field?" said Mead. It looks like Grandpa's big barnyard gate standing on end." "That is the new hayloader," said Joe. "The hayloader! Now we'll have fun sure," said Melody. "Brother and I watched all day

yesterday for it. Grandpa thought the men would bring it from the city but they didn't, and we wondered and wondered what it would look like."

It was not long before with the help of the hay-loader the wagon was ready for a return trip to the barn. Melody had picked some lovely pink bind-weed blossoms from the vines that covered the wire fence near by.

These were for mother, who was too busy to come to the hay field, but who would be very happy to think her little daughter remembered how she loved flowers.

"This is as comfortable as the big couch in the parlor," said Mead when they were seated on top of the load, and started for the barn.

"Yes," said Melody, "and I suppose you like it better because you are not told to keep your feet off."

"Mead pretended not to hear this. He seemed to be listening for something. "Could it be a bird," he thought. "Listen, Melody, what is that? Crick, crick, crick."

"It's a cricket, Mead; don't you remember those little black jumpers that we saw in the hay last year?"

"Crick, crick, crick," said the cricket. "I wonder where he is," said Mead. They looked in vain for the little black passenger and at last forgot all about him. He had been eating roots and playing a game something like leap-frog, with some other little black crickets, near the bind-weed vines and he listened with his two little ears, which were down on his legs, to the children talking about the fine ride they were to have on the load of hay and how pleasant when the days grew chilly in autumn to play in the barn and to stay in the kitchen a while on winter evenings and listen to Joe play on his accordion.

"Well," thought the cricket, "I wonder what they would think of my accordion," and "crick, crick, crick," he said.

"I believe I'll ride to the barn with the children." A few jumps and he reached some hay that the hay loader was just going to put on the wagon. Up he went.

"I just escaped being squeezed to death, thank goodness," he said to himself, and tried his wings to see if they were in good order.

When they reached the barn he jumped out of the hay and hid in a corner for he was afraid the big turkey gobbler might get him if he went out to look at the barn-yard. He waited until the pigs were being fed toward evening and all the chickens and turkeys went to get a taste; then jump, jump, jump, he went to the house and waited until he got a chance to steal in. Then he hid himself in a corner of the sitting room.

In the evening after supper Aunt Dorothy came. She was fond of birds, flowers and insects and the cricket must have thought so when he heard her admiring the pink bind-weed blossoms.

"I believe I'll play a little tune for her," said he, and jumped out on the floor where the fragrant breeze coming through the open window could fan him. "Crick, crick, crick," he played.

"Oh, listen to the cricket, children," said Aunt Dorothy. "Get a tumbler, Melody dear, and we'll take a look at Mr. Cricket."

The cricket looked with his three little eyes at Melody when she brought in the tumbler, and wondered what was going to happen.

"Now," said Aunt Dorothy, "we'll have to be very careful not to hurt him," and she spread a paper on the floor in front of the cricket and as she expected he jumped on to it. Then she covered him with the glass and carefully moved him to the table under the hanging lamp. Poor Mr. Cricket was frightened. He jumped against the glass two or three times and then sat still to think what was best to do. Then Aunt Dorothy knelt

down by the table and the children got down, too, and she raised the edge of the glass a little and blew in under, and "crick, crick, crick," Mr. Cricket was playing his accordion. His outer wings were lifted up at an angle of forty-five degrees and the under gauzy ones, which were folded together like a fan, went in and out like the sides of the tiny Japanese music box which Aunt Dorothy had given Melody on her ninth birthday the summer before.

"The cricket's manner of singing is called 'stridulating,'" said Aunt Dorothy to the children. "He has a little file and scraper up there in his wings and when the wind blows on them he can play without any effort, though it is possible for him to play without the motion of air through his wings; or he can if he wishes close his heavy leather wings so closely over the gauze ones as to shut out the air if he faces the direction from which the breeze is blowing."

"What are those long, black threads on his head called, Aunt Dorothy?" said Melody. "They are antennae. Many insects have little buttons or knobs on the end of their antennae but the grasshopper and cricket never have."

"Tomorrow I'll go to the hay field with you and take my microscope and we'll catch a cricket and look at his ears. They are on his legs instead of on the sides of his head." Then she carried Mr. Cricket to the door and let him jump away in the moonlight and hide himself. A big speckled hen came very near catching him for her breakfast next morning before he had a chance to jump into a wisp of hay left over in the big wagon and ride back to the hay field.

He was glad to get back, where he could tell his experiences to the other crickets who were eating roots and wondering what had become of their companion.

MARY GRANT O'SHERIDAN.

A CREDITABLE BLUE JAY.

I wish to recount an incident that redounds to the credit of a bird whose general reputation is a sad contrast to his bright plumage.

I was called from my work one day to be told that a Jay was breaking up the wren's nest in the cherry tree. My informant, whose indignation was very great, seized the gun with the intention of putting an end to the murderer. The Jay appeared to be trying to enter the hole that contained the nest against the frantic protestations of the wrens. We drove him away but he returned at once and renewed his efforts to enter repeatedly. This evidence might seem sufficient to condemn a bird with so dark a reputation. But I knew the Jay to be a very sly fellow, not in the habit of committing his depredations in the presence of the birds he wishes to despoil, to say

nothing of his wariness in regard to the human race, so I was confident that his bold actions in this instance should be attributed to some other cause than a desire for pillage. Therefore, wishing to investigate further before passing sentence on the Jay, I mounted a ladder the cherry pickers left standing against the tree and found the wrens' home occupied by a snake. We punched the snake out and dispatched him. He was about eighteen inches long and his stomach contained one young wren. The other nestlings were uninjured and reached maturity without further casualties. So the Jay was not only guiltless but a benefactor; instead of having evil designs upon the wrens he had answered to their call of distress in defense against the common enemy.

ADDIE L. BOOKER.

HYMN OF THE DAISY.

A little longer let me see thee,
O my Father-Sun!
Ere droop my blanching petals,
And my day be done.
One more deep draught, O give
Of thy surpassing light,
Ere fails the life I live,
Quenched by dark night!
I love thy face, great Father,
Nor content can fold
My bannerets of white
That all day float,
Bearing thy name in gold,
As long as in the western sky
Thy face—a glory-beam—is yet in sight.
When sets the Sun, then only is my eye
Shorn of its love, and without thee must die!

—MRS. MERRILL E. GATES.



FROM COL. CHI. ACAD. SCIENCES.

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THE FLORIDA GALLINULE.

(*Gallinula galeata.*)

The Florida or Common Gallinule is an interesting bird which presents to the observer many startling characteristics. Its voice, its manner of feeding, walking and swimming, and its nest, are all worthy of study and will fascinate the student who seeks for knowledge in the domain of Nature. It is an inhabitant of the quiet swamps of the Eastern United States, where it breeds from the Gulf of Mexico northward to the British Provinces. However, its center of abundance is in those southern states that border the Atlantic Ocean and the Gulf of Mexico. It is also a resident of Central America and of South America as far southward as Brazil and Chili.

The Florida Gallinule is an aquatic bird and is closely related to the rails and coots, and belongs to the same family (Rallidæ). Though it moves rapidly and gracefully through the water its toes are not webbed, but are merely margined by a narrow membrane. The toes of the coots are margined by a broader and lobed membrane and those of the rails are entirely naked. Because of its close resemblance to the moor-hen, or the gallinule of Europe, it is commonly called the American Gallinule. As its habits are very similar to those of the mud-hen (king rail) it is not infrequently named the Red-billed Mud-hen. The Florida Gallinules vary both in the size and form of the frontal shield and in the size of the white patch on the abdomen. Dr. Ridgway has suggested that, as these variations are not dependent on locality, they probably have some connection with age and season, the white on the abdomen being more marked on winter specimens.

On land, the Gallinule presents a dignified appearance, "threading its way

deftly among the stems of the bushes and tall rushes, stepping daintily, lifting and putting down its feet slowly and almost incessantly jerking up its tail with a quick, nervous motion which causes the under coverts to flash like the sudden flirt of a handkerchief." When standing, the Gallinule is a graceful bird and is especially attractive when the scarlet of its bill and frontal shield flash in the bright sunlight. It enjoys frequent baths and will spend much time carefully dressing its plumage.

It is impossible to describe the calls of the Gallinule for they are numerous and quite complex. All of its notes are very loud and uttered in discordant and harsh voice.

Mr. William Brewster has given the following account of a pair: "Late one afternoon we suddenly heard a great outcry and soon our pair of Gallinules appeared; the female, who was much the plainer colored in every respect, swimming swiftly, her tail lowered and about in line with the back; the male, flapping his wings on the water in his eagerness to overtake her. This he soon succeeded in doing, but just as he clutched at her with open bill, she eluded him by a sudden clever turn. He then swam round her in a narrow circle, carrying his tail widespread and erect, his neck arched, his scarlet front fairly blazing and apparently much enlarged and inflated. Seeing that she would not permit his approaches, he soon gave over the pursuit while the female swam into the bushes. During the chase one of the birds, presumably the male, uttered repeatedly the following cry: ticket-ticket-ticket-ticket. This was doubtless a wooing note, for we heard it on no other occasion."

MORNING GLORY AND MULLEIN.

There are sweet and lovely things to be found almost everywhere. Perhaps that is the reason the morning glory sent up its vine in a fence corner. The fence was a zigzag rail fence, and was looked upon by the picket fence as being very ugly; but the Morning-glory did not know it, and the red squirrel did not know it, either, so he often sat upon it to eat a nut, holding his tail curled like a plume over his back; or he ran the whole length of it, starting in the shade of the deep wood where he lived, where ferns spread out, fanlike, along the fence, on, past the big field, where blackberry vines clustered close to it, and then past the orchard, where apple trees leaned over it, and big sweetings and russets dropped in the grassy corners. Just beyond the orchard the old rail fence joined the white picket fence, and neither liked the other, and the squirrel showed which he liked best by turning around and running back.

The Morning-glory grew right up among sorrel and clover, and ran up the fence, and held its buds up above the top rail, and waved about wildly in the breeze, which was the proper thing for it to do, as it was a wild Morning-glory. It thought the world was such a beautiful place, and was so glad it had all the time there was to be happy in, and was doing so when its buds began to open. They were very white and tender, and felt as pure as the sky, and just as they were peeping around with wonder and delight, a farmer came along with a little girl, and she cried out,

"Oh, father, see that lovely Morning-glory on the old fence."

The farmer did not look happy as everything else did, and he said, crossly: "It is not lovely; it is a nasty weed." At this the Morning-glory was so surprised and shocked that a faint blush spread over the pearly faces of all her blossoms, but before she could even sigh, the man

and the child were gone, and a big Mullein plant near by said, soothingly:

"Guess you are no more a weed than that freckled faced girl with red hair."

Now the Morning-glory felt hurt again, for she liked the little girl who liked her; but she was so much pleased that the tall stiff Mullein had spoken to her that she said:

"What a nice place it is here."

"Not at all," answered the Mullein, "it's a lonesome, dull place, where nobody sees us."

"Well, we can be happy over what we see ourselves. I feel as though we were put here to be happy."

"You have no ambition," answered the Mullein. "Here I have shot up this tall stalk and put forth such a number of golden bloom, all to no purpose. I don't believe the one who made us grow here did what was best for us. There are flowers whose life is for some purpose."

"How do you know?" asked the Morning-glory.

"I learned it from the little girl. She came here with a companion in the spring and took my largest, softest leaves for blankets for her tiny dolls, and she told the other girl that she wore pansies on her breast on Sundays, and was going to take some big red peonies to church on Children's day. I think it is so strange that I was made to grow in a fence corner."

Just then the sun fell brightly on the Morning-glory's faces, and brightened it a little, and it began to hide them, but a breeze whispered to it:

"Never fear, though some of your blossoms close, others will open tomorrow."

Then it felt so glad that it threw up some tendrils to the ends of the rails, and climbed higher, and said:

"I am sure that life is good."

And afternoon came, and evening came, and stars looked down, and dews

fell, and all was very sweet, but it could hear the Mullein murmuring:

"I am afraid that nothing will happen to me. When morning dawned, who should come along but the same little girl, and a lady was with her, with bright eyes, and a happy, eager look on her face.

She carried a curious frame work of wood, and the little girl had two camp chairs, and they sat down under a little wild cherry tree, just across the road, and on the wooden structure she fixed a frame work with cloth stretched over it.

But I must tell you that just as they came up the little girl said:

"Now, isn't it a big one?" and the lady replied: "Splendid; just what I wanted."

Then the Mullein and Morning-glory were still for very wonder, and the lady stirred and mixed something on a little dark board, and brought it close to the Mullein, and it was just the color of its leaves, and she sat down and worked at the cloth on the frame, while the little girl ran around and picked clover blossoms, and sat at her feet in the grass, and made a wreath.

The Morning-glory was too busy waving about and growing to watch her very closely, but the Mullein stood very still and stiff and opened wide her golden blossoms to see what it all meant.

Oh, how lovely the lady was! A little sigh came from the heart of the Mullein flowers because they were not the roses that were pinned in her belt.

We never know what is going to happen to us. The lady sat nearly still, though her hands moved a little as she made fine dashes on her canvas with a tiny brush on a slender stick. The little girl still wove clover stems.

Suddenly there was a faint whir in the air, and a glossy Blackbird with spots of yellow and crimson on his wings lit on the top of the Mullein stalk.

It bent over with him, and he sat there for half a minute for a little rest, then lifted his light wings and flew, and he, like the Mullein, did not know it was an important moment.

He never did know it, but the Mullein heard the lady call to the child:

"Wasn't that lovely? I've so long wanted a picture of a Mullein stalk with its silvery green leaves rising from the grasses and clover, but I never dreamed of having one with a bird on top of it. Thank you, Mr. Blackbird, for showing me just how to make my painting. You sat for your picture, and did not know it."

The Blackbird did not hear her, and would not have cared, for his soul was full of music, but the Mullein whispered over and over:

"My hour has come."

Then the little girl said to the lady, "What will you do with your picture?"

The lady replied, "I will take it to a great fair, where thousands of people will look at it, and I think it will make them glad, for people like common things; then I will sell it to a rich man who once lived on a farm, and who would love a picture like this better than one of a wreath of hot-house flowers. He will hang it in his gallery."

Then the little girl said she was tired, and went home, thinking all the way how strange it was that common things were as nice as fine things.

And the lady stayed and painted, and came the next day and painted again, and the Mullein saw its picture with its spike of pale yellow flowers bending with the weight of the bird, and it said, "I am content, something has happened to me."

Then it said to the Morning-glory: "I am sorry she did not put you in. I believe it was because you were too handsome."

"Then that is enough," said the Morning-glory. "I have air and sunshine, and what could be better? I wonder if we all get what we want. We all get something grand."

"I believe we do," said the Mullein, "but perhaps some of us do not know about it. The Blackbird didn't."

"Then it had something else to make him happy," said the Morning-glory, "and how nice it is that there are good things happening for us of which we never know."

ANNA R. HENDERSON.

THE EUROPEAN SONG THRUSH.

(*Turdus musicus*.)

The Thrush's song
Is varied as his plumes; and as his plumes
Blend beauteous, each with each, so runs his notes
Smoothly, with many a happy rise and fall.
How prettily, upon his parded breast,
The vividly contrasting tints unite
To please the admiring eye; so, loud and soft,
And high and low, all in his notes combine,
In alternation sweet, to charm the ear.

—Graham.

The Song Thrush of Europe is a beautiful and familiar bird of sprightly habits and wonderful power of song. Sing it must, for it possesses a happy nature. In England and Scotland, from the month of January to that of October, there are thrushes that sing. It is not the same bird that sings through all of these months, but as soon as one has finished its season of song, there seems to be another to take its place. Even a day or two of fine weather with sunshine and warmth in the midst of winter, is sufficient to awaken its sweet voice which has been quieted by, perhaps, a fall of snow. The Thrushes, however, may be said to be in full song during the months of April, May and June. It sings at both ends of the day, and it may even raise its voice from some sheltered perch during a pouring rain.

Its song is indescribable. Though several individuals may sing at the same time, often but one sings while the others appear to listen until it has finished, when another takes up the strain. An English observer of bird life, has said of its song: "There may be wilder, louder and more marvelous songs; but to me it is all-sufficient, for it enters into the soul, melts the heart to tenderness, diffuses a holy calm, and connects the peace of earth with the transcendent happiness of heaven." Another writer has said: "The nightingale, heard in the depth of

groves and during the soft and balmy stillness of the summer's night, may have more of the lusciousness of romance about it; but there is a bold, natural and free feeling of rustic vigor, enjoyment and endurance about the Thrush which gives it a more home and hearty interest in all parts of the country, than can be possessed by any mere bird of passage, whatever may be its charms while it stays." Its blithe song indicates a contented nature and that its larder is full to overflowing. Its voice is never heard amid desolation.

Its home is not in the marshes nor in regions that are without trees or hedges. The Song Thrush loves trees; the woods the hedges around plantations, even the bushes of gardens and the orchards are to its liking, and there it is found. It prefers animal food and thus destroys vast numbers of snails, slugs, earth worms, larvæ, beetles and other insects. When it cannot obtain animal food, it eats berries and seeds, and frequently commits great devastations among cultivated fruits. However, much of its food consists of animal forms that are highly detrimental to the growth of cultivated plants. It eats large numbers of snails which feed upon the early vegetables and upon the smaller fruits. Even before the snails have awakened from their winter's sleep, the Song Thrush finds them in their cozy hiding places beneath hedges and under



EUROPEAN SONG THRUSH.
(*Turdus musicus*).
4/5 Life-size.



a covering of leaves where they have been protected from the storms and the cold. So industrious are the Thrushes in their search for snails "that the hedge side is marked by a line of broken shells, as the birds fetch the snails out and batter the shells to pieces with their bills by hammering them against a stone."

The nest is usually built in a hedge, tree or shrub at no great height above the ground. In unwooded localities it is often placed in the crevice of a rock

or at the base of a tuft of heath. Externally, the nest is composed of slender twigs, fine roots, grasses and moss. It is lined with a thin layer of mud, dung or rotten wood, upon which the eggs rest.

Not only is the male Song Thrush a beautiful singer, but it is also industrious and very attentive to its mate during the period of hatching their young. Two, and not infrequently three broods are raised in a single season.

AUNT GAILY'S RAT STORY.

The Gaily family had a supply of sorghum molasses made each season and this particular autumn it was made and brought home in a large tin can or vat of some sort, and set in the cellar to get the air for a number of days. The can was very large and the quantity of molasses small, and Aunt Gaily's cellar a pink of cleanliness. One day when she went to the cellar, she was surprised to see dirt floating on the molasses and a dauby appearance to the can.

She could not imagine the cause, for she could see no tracks of any kind about. The thing repeated itself day after day, and Aunty determined to fathom that molasses question to the bottom. She found plenty of dirt in the bottom of the can, nothing else, when suddenly she spied around a post, the sharp eyes of Mr. Rat coming for his rations. She quietly seated herself to await developments. Soon came another rat and then another, and another, until seven or eight big fellows appeared; then up the side of the blistered, painted can went

one and hung himself by the front feet down inside the can, and another followed him and crawled down his back and hung to his hind legs. Then a third, a fourth, until as Aunty said, a great large "Grand daddy" rat crawled down the rat bridge and hung on. His tail went into the molasses; he switched it around, smearing his back with the syrup and getting as much on himself as he possibly could. Then he crawled back, up and off; the rest followed him and got down on the cellar floor. He then ate what was on his tail, and the rest took what was smeared on his sides and back till altogether he was washed slick and clean.

Aunty thought she had been in the cellar long enough by this time, so she shooed the rats and off they scampered. She thought they would have done the same thing again had she kept quiet longer.

It is very safe to say the Gaily's ate no sorghum from that can and that a good trap was soon placed on the scene of action.

MARY NOLAND.

A NEST OF YOUNG HUMMINGBIRDS.

Aunt Julia and Bessie had been for a walk on the foothills of the Sierra Madra mountains and returning, were joined at the gate by Ruth and little Teddy, who had been hunting for them.

Aunt Julia proposed that they should go and sit on the bench under the large pepper tree; and when they were all seated, with little Teddy cuddled snugly on one side of Aunt Julia and Ruth on the other, the latter said: "Are you too tired to tell us a story, Aunt Julia?"

"Please tell us a 'tory, Aunt Julia." begged Teddy.

"Now, children, I think that you might let Auntie rest," protested Bessie.

"I am not too tired, Bessie, and will gladly tell them a story," replied Aunt Julia.

"Goody!" exclaimed Teddy.

"It is my turn to choose," said Ruth. "Please tell us about the nest of Hummingbirds that you saw at Uncle John's last summer, Aunt Julia."

"Oh, yes, Aunty, tell us about the little birdies that looked like worms!" exclaimed little Ted.

"Well," commenced Aunt Julia, "last year I was spending a few weeks visiting your Uncle John at his ranch near Los Angeles. They have many kinds of fruit out there, and one day your little cousin Neva thought that she would see how many of the trees were going to bear fruit; so she went to the peach, plum, apple, apricot, fig and orange trees and finally she came to the gauva bush which had been trained up like a tree and had grown to be about four feet high. When she peeped into that what do you suppose she saw?"

"I know!" cried Teddy. "It was a little bird's nest!"

"Yes, it was a Hummingbird's nest which was not more than an inch and one-half across, and in it were two tiny white eggs that looked much like beans. The kind that mamma bakes and you are so fond of, Teddy."

"Teddy smacked his lips at the thought of the beans and Ruth ex-

claimed: "Oh, Aunty, you make me hungry!"

"Of course, all the children in the neighborhood, as well as many of the mammas, came to see the tiny nest and eggs. The mother bird was very tame and would allow all to come within three feet of the nest while she was on it: but if we went much closer she would dart away and light upon a tree near by or hover around our heads until we stepped back, when she would settle down upon the nest again, making such a dainty picture."

"Did the mamma bird stay upon the nest all the time, Aunt Julia?" asked Bessie.

"No, she would only remain there a short time, when she would fly away and buzz from flower to flower sipping honey as you have seen the Hummingbirds around here doing. Every day we peeped into the nest to see if the eggs had hatched, but for seven days we looked in vain. Finally one of the girls announced that there was one little bird in the nest, and the next day there were two little birds instead of the eggs."

"Oh!" exclaimed Teddy. "Where did they come from?"

"Out of the little eggs, Teddy," explained Ruth.

"Tell us how the little birds looked," said Bessie.

"Well, they were the homeliest little things that I ever saw! All young birds are homely, but these little things looked more like worms than birds, and seen away from the nest I am sure none would have guessed what they were. They had no feathers, unless the two dark stripes down their backs might be feathers; no eyes and only very short bills. Their mother did not seem to stay upon the nest at all now, but the hot California sun beat down upon the little babies and kept them warm enough. You know, it almost never rains in California during the summer time, and we wondered if the little parents knew this: and if they had been building in any

other part of the country they would have placed their home in such an exposed place; for a hard rain would have killed the baby birds and destroyed the nest. It was several days before the little birds' eyes opened, and they were a week old before they had any feathers. When the feathers did come they were drab, except on their backs, which were a lovely green. We thought them very pretty now, and would stroke their little backs and call them pet names."

"Were they afraid, Auntie?" asked Ruth.

"No, not in the least," replied Aunt Julia. "As they grew larger they more than filled the little nest, and we feared they might fall out; but we found that they clung firmly with their tiny claws, and were in no danger of falling. Late one afternoon when they were about a month old, I saw the mother bird feed them."

"Oh, tell us about it!" exclaimed all the children.

"The old bird came and sat upon a branch near the nest, and quickly both little birds gave a jump toward her, flopping their wings, opening their mouths, and making a little peeping noise that probably meant: 'Me first, mamma! me first!' 'Oh I'm so hungry!' and they crowded and pushed each other just like two greedy little children."

"What cunning little birds!" said Besie. "Tell us how the little mother fed them, Auntie."

"Well, continued Aunt Julia, "the mother bird put her bill first into one open mouth and then into the other, until both birdies seemed satisfied and settled back into the nest. Now, I am going to tell you how well they behaved when they had their pictures taken. One morning when they were five weeks old, a gentleman came with a camera which he found he could place within eighteen inches of the nest. I suppose if it had been a little girl whose picture he was taking, he would have said: 'Now smile and look pleasant'; but what he did say was: 'I wish that they would sit up in the nest better. Can't you pull that one up a little?' And I would take hold of its bill and carefully raise the little fellow up. 'Now if that one would only turn its head

a little more.' Then he would whistle and snap his fingers above the little heads, as though it were real babies that he was photographing instead of little Hummers. Finally when they seemed to be about right, he squeezed the bulb and the picture was taken. It proved to be an excellent likeness of the birds and their home. We noticed while we were near them that one little bird kept sticking out a tiny tongue which looked much like a needle and, thinking that they might be hungry, I offered them something sweet. What do you suppose it was?"

"Candy?" instantly came from Teddy.

"No, guess again, Teddy. Remember that it was not a little boy that I was feeding."

"I'll give up. What was it, Auntie?" replied Teddy, anxious that the story should be continued.

"A pink geranium blossom."

"Oh, did they eat it, Auntie?" came from irrepressible little Ted. Both girls laughed at the idea and Aunt Julia replied, "No, Teddy, but the little tongues were instantly darted out, and the little bills were stuck into the centers of the flowers, showing that they knew where to find the honey, even though they had not had a chance to try for themselves before. You know that Hummingbirds sip the sweet juice from the center of the flower; and I presume they enjoy it as much as you do candy, Teddy. Only a few days after this when we went to look at the little birds we found that one of them was gone."

"Oh, did the kitty get it, Aunt Julia?" asked Teddy.

"No; it had flown away with its mother, and we felt very sorry for we had come to be very fond of the cunning little thing. Your cousin Helen took the remaining bird in her hand and brought it into the house. It sat upon her finger for some moments and then suddenly flew across the room and lighted upon the top of the door. That was its first attempt at flying, and I presume that it felt very smart about it. Helen carried the little fellow back to its nest and left him by himself that night."

"I wonder if he was afraid," said Ruth.

"Was he there the next morning, Auntie?" asked Bessie.

"Yes, but he would not let the girls catch him. Later in the day, however, we saw the two old birds around in the yard and the little ones flying near them. They would light only a few feet from us and twice I caught the smallest one; and when I placed him in the palm of my hand, he seemed to think that I ought to feed him. He drooped his little wings and opening his tiny mouth, he begged me, as he had his mamma, to give him something to eat. Then, Teddy, we tried to feed him from a spoon, giving him a few drops of sweetened water; but I fear that he did not enjoy it as he did when his mother fed him. These

little birds were around in the yard all summer and we called them our Hummingbirds. They soon had red spots on their throats just under their bills, so we knew that they were the Ruby-Throated Hummingbirds. We often saw them sitting upon a branch, and heard their plaintive little song.

"Why didn't you bring me a baby bird, Aunt Julia?" asked Teddy.

"It would not have lived, Teddy, and I thought too much of the little birdies to shut them up in the house. There, mamma is calling us to tea," replied Aunt Julia.

"I'll beat you to the house," cried Teddy, and away the children ran, leaving Aunt Julia to follow at her leisure.

HARRIET WILLIAM MYERS.

MY ENCOUNTER WITH A WILDCAT.

An encounter with an American wildcat is always well spiced with excitement and lively interest. Although in this instance there was no harm done, it was indeed interesting (at least to me). The locality of this narrative was in northwestern Tennessee, about one and one-half miles from my native town, a place of 4,500 inhabitants. There is a large lake called Reelfoot, only twenty miles from there, and occasionally a wildcat is still caught in the dense woods near the lake. The winter had been an unusually hard one and had driven a good many animals from the lake woods into the more open country in search of food, which probably accounts for his being so near the town.

One pretty clear day in the dead of winter I was out hunting and while going through a small thicket noticed a hickory tree under which there was very little snow and the ground was thickly covered with fine large nuts. I determined to get the nuts, so next day went out again with a sack, leaving my gun at home. After gathering my sack full, I started to return to town and was trudging cheerfully along the public road, with my sack of nuts swung over my shoulder, when all at once I heard a peculiar noise in the

cornfield on my left. It sounded like some animal crunching bones, so I stepped to the fence to investigate. About twenty feet from me was what I at first thought to be a great, gray tom cat, with his back toward me and half hidden by the crabgrass, munching on a rabbit and snarling with very evident satisfaction.

I do not know what prompted me to do so, but I took a nut out of my sack and tossed it at him. My aim was somewhat truer than usual and the nut struck him fairly on the back. He suddenly whirled round with a spit and snarl, his back humped, his bobtail and pointed ears sticking straight up, his eyes glistening with surprise and anger, and emitted the most unearthly, blood-curdling yell I ever heard, that no longer left me in doubt as to his personality. Then I gave a yell and we both turned to run, but in opposite directions. It would be a hard matter to tell which was the most frightened, the cat or myself. I know that for my part, I never stopped running till I reached the town, but when the cat stopped I cannot say for I did not follow him to see.

I suppose some passerby feasted on my hickory nuts, for in my hurry I forgot to bring them along, and did not care about going back to secure them.

LOUIS P. ZIMMERMAN.



FROM COL. CHI. ACAD. SCIENCES.

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CLARKE'S NUTCRACKER.
(*Nucifraga columbiana*)
About $\frac{1}{2}$ Life-size.

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THE CLARKE'S NUTCRACKER.

(*Nucifraga columbiana.*)

Clarke's Nutcracker has been given a number of popular names, all of which refer to some characteristic or habit of the bird. It is, perhaps, more commonly called Clarke's Crow; a name that is quite appropriate, for this species is a member of the family of crows, jays and magpies, and resembles the common crow in some of its habits. It is also called Meat Bird and Moose Bird, while in some localities, because of its "daring and thieving propensities around camp fires," it has been given the very significant name Camp Robber.

This beautiful and interesting crow is a resident of the mountain ranges of western North America, from Alaska on the north to Arizona and New Mexico on the south. The species has gregarious habits and as the food supply becomes exhausted in one place, the birds travel on to a new feeding ground. It may, however, be considered a constant resident throughout its range, except in the most northern portion, where it is somewhat migratory. In some of its habits it resembles the woodpeckers as much or even more than it does the crows. Mr. Frank M. Woodruff, who captured the specimen we illustrate, was at first misled by its manner of flight and other habits—he believing that the bird was a woodpecker. Major Charles Bendire had the same experience. He says: "I well remember how elated I was over my first specimen, which I obtained after a long chase through soft, slushy snow, thinking I had secured a new woodpecker, its undulating flight resembling that of one of these birds very closely."

Major Bendire has given a very graphic account of the habits of Clarke's Nutcracker in his valuable work on the "Life Histories of North American Birds." His observations are so interesting and so well represent the experiences of all who have studied this bird, that we give his account in full:

"Excepting the breeding season, Clarke's Nutcrackers are sociable, inquisitive, and exceedingly noisy birds, and

are readily detected on this account when moving about in flocks of a hundred or more in search of good feeding grounds: they are quite omnivorous, and nothing edible is rejected by them. In the winter their food consists principally of the seeds of different species of coniferous trees, while at other times it is quite varied, including berries of various kinds, beetles, and other insects and their larvæ, including butterflies (which I have seen them catch on the wing like a true fly-catcher) and grasshoppers. They also eat the large, wingless black crickets (*Anabus simplex*), which are exceedingly abundant and destructive wherever found, overrunning large sections of country and devouring everything green and edible in their way. I have seen flocks of these birds scattered over the sagebrush-covered mesas forming the southern foot-hills of the Blue Mountains, in Oregon, industriously engaged in catching these repulsive-looking insects and apparently eating them with a relish. They seemed to be especially noisy at such times, calling each other constantly, and having a jolly good time generally. While usually rather shy and not readily approachable within gunshot, I have occasionally seen a few much bolder and more inquisitive than the rest, alighting among my chickens in the back yard, and feeding with them. They spend considerable time on the ground in search of food, hopping about from place to place like jays, looking here and there for a choice morsel. They will hang to the bark of a tree precisely like a woodpecker in search of grubs, and again to the underside of a pine cone, like a crossbill, and apparently extracting the seeds with equal dexterity. Their call notes are harsh and far-reaching and consist mainly of a loud, rasping 'chaar, chaar,' which can be heard for a long distance, and when a number are together the noise made by them becomes rather disagreeable. They do not appear to destroy the eggs or young of smaller birds,

but do far more good than harm, and on this account deserve protection."

In this rollicking bird there are combined some of the characteristics of both the crow and the woodpecker, and the flycatcher and the crossbill. Both the male and the female assist in the building of the nest and the male attentively performs his share of the duties of incubation. The young are fed hulled pine seeds and, growing rapidly, are soon able to leave the nest.

The nest of Clarke's Nutcracker is a wonderful structure and is usually constructed on the following plan: "The nest proper is placed on a platform of dry twigs, mostly those of the western

juniper and of the white sage, averaging about three-sixteenths of an inch in thickness, and varying from eight inches to a foot in length. These twigs, which also help to form the sides of the nest, are deftly matted together and to the smaller twigs of the limb on which the nest is saddled; they are further held together and bound by coarse strips of the inner bark of the juniper tree; these strips are mixed among the twigs and are very suitable for this purpose. The inner nest is a mass of these same bark strips, only much finer, having been well picked into fine fiber; it is quilted together with decayed grasses and pine straw, forming a snug and comfortable structure."

BIRD NOTES FROM NEBRASKA—II.

April 25.—Found a dead hawk in the road out in the country. There were no signs of its having been shot. In its throat and partly protruding from its mouth was a partially decayed chicken or bird of some kind. I inferred that the hawk had choked to death in its greed to swallow its prey.

April 29.—A bittern flew up near me. I had not seen one before. It lit near some trees a long way from me. With my glass I could see its head and neck, but not its body. They were erect and motionless, like a stick in the ground. After a while I could perceive a very, very slow motion. It was so slow that I would never have noticed it had I not been carefully watching the stick-like appearance.

April 30.—I found a dead robin in the bushes by the railroad. Some boys told me that a man was hunting there on the preceding day, Sunday, and he had probably killed it. The incident aroused me to write two articles for the local papers about killing birds, and also to give a talk on the subject in the high school. So I think that bird did not die in vain. I have reason to believe that its death saved the lives of many birds.

I like the English sparrow. He does not desert us when cold weather comes, but stays right by and is bright, alert, cheerful, happy in all sorts of weather. It is such fun to see them hop along in the street like rubber balls. One day I saw a long straw, some twenty inches in length, flying through the air, but not flying before the wind. It was pulling a tiny sparrow along with it. Or was the sparrow pushing the straw? On different days I saw a female sparrow following a robin all over the lawn and keeping a certain distance from it. When the robin flew into a tree the sparrow would follow. When the robin came back the sparrow did likewise. Query: Was the sparrow attached to that robin for his own sake, or was it for the sake of the worms that the robin found? I did not notice that the robin paid any attention to the sparrow.

The rose-breasted grosbeak was one of the first birds that I identified after I became interested in birds a few years ago. Partly for that reason, and partly because of its beautiful plumage and beautiful song, it is one of my special favorites among my bird friends. I hardly ever fail to see it when I go in the

early morning to my favorite resort for studying birds in the edge of town. I have also seen it in my garden. Its honey-like song, so full of plaintive sweetness, wins for it many friends. So does that brilliant red spot on the breast of the male. When I get a good view of that spot with the sun shining on it I think there is no beauty spot on any of our birds that quite equals it. I saw two of the males fighting one day, and I could imagine that they had clawed each other's breast till the blood had flowed out and stained the feathers a crimson color. One day I saw one hopping on a railroad bridge just as the English sparrow does at times. It bounded along as though its legs were made of stiff rubber. Some birds walk, some run, some hop and some tumble along as though badly hurt. So did the mourning dove that flew from its nest when I came too near and tumbled and flopped

along the ground for a long ways to draw me away from the nest.

The cardinal, or red bird, is scarce where I live. I saw none the first two years that I was looking for birds. In fact, I had never seen one except in a cage. Or if I saw one in my pre-bird loving days I do not remember it. I heard last year that one had been seen near my home. Several persons told me of it. Day after day I looked for it in vain. Finally one morning as I was out early looking for birds the glorious pair, male and female, flashed into view. I saw them with my naked eye and also studied them with my glass. That was a red-letter (red-bird) day in my observation of birds. People who live where certain beautiful birds are very common do not realize how much it means to see one of them in a region where they are scarce. The same is true of other beautiful things.

ROSELLE THEODORE CROSS.

IN NATURE'S REALM.

A warm breeze blows
Where the daisy grows
And how fair and soft is the daisy's face,
As it peeps from its frill of snowy lace,
As it bows to the grass with tender grace,
Where the warm breeze blows!

Far, far above
Flies a blue-winged dove.
He has never seen the daisy so fair,
He loves the sky and the white clouds there,
In a world free from sorrow's care—
Far, far above.

In valley deep,
Where the fire-flies sleep,
Over the stones the little brook flows;
Naught of the daisy or dove he knows—
His life is the song he sings as he goes
In the valley deep.

—JAC LOWELL.

NESTING OF THE FLORIDA GALLINULE.

The Florida Gallinules or Rice Hens, have a more extensive range than their name would indicate. They breed abundantly throughout the south Atlantic and Gulf states, and are met with in limited numbers as far north as Massachusetts and Maine, and from there westward along the Canadian border to Minnesota. In the middle states, east of the Mississippi river, their appearance is somewhat erratic, though they abound in certain localities in Ohio, Michigan, Indiana and Illinois. The northern portion of the two latter states, a locality known as the Calumet Region, is a favorite summer home of the Florida Gallinule, where they show a preference for sluggish water, surrounded by cat-tails, flags, and bulrushes.

Gallinules, in various phases of their lives, appear as a sort of connecting link between the rails and coots. In Cook County, Illinois, I have observed the king, sora, and Virginia rails, together with the mud-hen or coot, all nesting in close proximity to Gallinules, and in several instances, a striking resemblance was noticeable between the Florida Gallinule and some one of the above species. For instance, the sora rail, with its compressed little body and wide spreading toes, always reminds me of a Gallinule "on a small scale" for, as the former swims about among the rushes, or bobs in and out of the tall grass, it behaves exactly like its larger relative. One sora which I noted, took the liberty of depositing a couple of her eggs in a newly made Gallinule's nest.

During the month of June, Gallinules are extremely noisy and keep up an incessant "chucking" or "cackling," both day and night. This noise, together with the "cooing" of the coot; the "clicking" of the rails, and the "pumping" of the bitterns, produces one of the most spectacular effects in the history of the bird student.

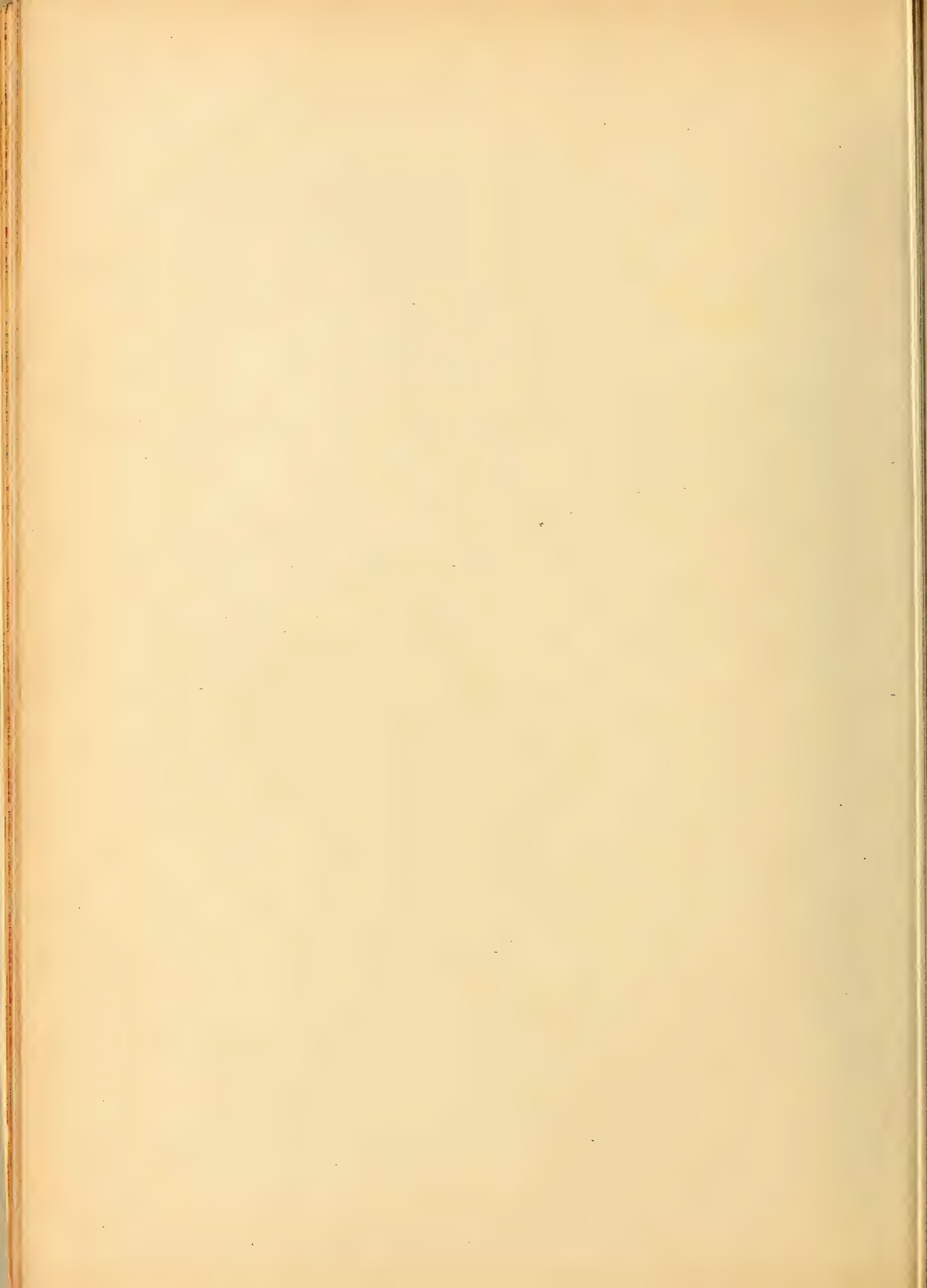
Like the coot, the Gallinule often breeds in colonies, constructing its nest

in one of two ways. Some nests are built in or on a clump of dead rushes or reeds, and float upon the water, in a similar manner to that of a mud-hen. Others are suspended a foot or two above the water, in a rank growth of vegetation, and are handsomely woven with blades of marsh grass and green rushes. Occasionally the birds commence nest building and laying on the same day, and any person observing an egg in such a situation would scarcely recognize the work already completed as the foundation of a new nest. When the nest is completed, a pathway is constructed of the same material that is used in building the nest and forms a "runway" extending from the nest into the water. This is a characteristic which immediately distinguishes the Gallinule's nest from that of the coot.

The eggs, numbering from seven to fourteen, are laid, according to locality and environment, not earlier than April or later than July. In northern Illinois, I have found full sets between May eighteenth and July twentieth. The eggs show remarkable variation in size and shape. The smallest I have ever seen, averaged one and fifty hundredths inches long by one and fifteen hundredths inches in diameter. The largest eggs were two and thirty-five hundredths inches long by one and fifty hundredths inches in diameter. In color some specimens have a bluish gray background and are spotted with shades of red and lilac. These bear a resemblance to eggs of the king rail. Another type partakes of the shades found on a mud-hen's egg; they are rather finely spotted with dark brown, on a clay-colored background. But the handsomest variety of Gallinule's eggs are distinctly different from either of the above. They possess a highly polished surface, with a reddish or light brown background, upon which are displayed large and bold spots of umber, brown and lilac, chiefly about the larger half of the egg.

GERARD ALAN ABBOTT.





AN INDUSTRIOUS LITTLE HOUSEKEEPER.

About a year ago, at the beginning of the warm season, I took the children out to the country to spend a day. We had a good time tramping through the woods all the morning, and at noon we sat down beside a small, brackish stream to eat our lunch. The boys had cut long sticks from the willow trees, and with these they threshed the water all the time we were eating.

It was soon observed that they were causing a great deal of excitement for a little fish we had not noticed before. He was so funny in his anger that he reminded us of a small boy squaring off for a fight. The boys stopped when they found they were worrying him, but we stayed for some time that we might watch him.

He proved to be one of those queer little Sticklebacks, and he was, we could plainly see, monarch of a certain small territory of water bounded by two or three tussocks. His monarchy was absolute, there was no doubt about that.

Whenever another fish dared to come near his kingdom he rushed at him in the wildest fury. He struck viciously at him with his fins, bit him and did everything in his power to drive the intruder away. Sometimes the water became quite red from the blood shed in the fray, and the stranger, who was nearly always taken at a disadvantage, was glad to escape with his life.

Ah, but here comes the Queen of Sheba! What does this mean? Instead of attacking the newcomer, as we expected, of course, he advances most courteously and delicately to meet her. Now he glides by her side, close to her, now he darts back to his dominion. Back he comes to her again, swimming gracefully, showing all his lovely colors to their greatest advantage, and, coaxingly, perhaps whispering something to her, he endeavors to allure her into his little

home. By and by she yields to his persuasions and with him enters the port.

Here he guides her to a certain spot, and then leaves her, while he guards his frontier. In a little while the visitor takes her departure, and the episode is repeated with other fish. Some are driven away savagely, but the little knight is so polite to the ladies that he always treats them with the greatest respect.

We were very curious to visit the place to which these visitors were invited, so we crept around to it and, after much peering and speculating, made our discovery.

This was the Stickleback's nest.

I had often heard that these nests were strange things, but never before had I had the pleasure of seeing one. And what a tiny thing it was! We never should have seen it had we not looked so carefully. It was of the same color as the mud in the bottom of the stream, and was built of tiny wisps of dried grasses woven together. Some sticky material held it fast to the bottom of the stream, so that there was no danger of its being washed away.

And this was the place to which Mr. Stickleback had kindly invited the ladies who passed by. Each lady Stickleback, pleased with the courtesy, stops in to rest for a moment, and leaves, as a souvenir of her visit, a few eggs. In this way Mr. Stickleback receives as presents as many as one hundred eggs for his nest. These remain until they are hatched.

We enjoyed our visit to our new friend so much that we called several times afterwards. And what a Bedlam the poor father had while the babies were growing! Little fishes here, little fishes there, and they wanted to eat all the time. My, oh, my! There never was a busier father than this one. Until the children were four weeks old he spent all his time in hunting delicacies for them. And he

was just as rampant as ever when strangers came near. No visitors wanted there at all now—too busy; can't be bothered. Any foreigner showing too much familiarity is driven away in a hurry.

But when the children were old enough

to take care of themselves Father Stickleback was greatly changed. Eight weeks after our first visit he was just as gentle as could be. He no longer felt suspicious of every passerby, but led a comfortable and happy life.

ELIZABETH ROBERTS BURTON.

JUNE ROSES.

Did you think, when the earth lay frozen and snow-bound
And sleety winds trampled the plain,
That nothing but sad things was left, while the glad things
Would never come back again?
But look at the roses, in every color
That to a June rose belongs!
Red roses, gold roses, pink roses, white roses,
All coming, in squadrons and throngs.

Did you think, when the rivers were hushed under cover
Of ice, shining glassy and clear,
That never could anything—man, bird or flower—
Come out into sunshine and cheer?
Now look at the roses in riotous beauty,
Their fragrance on every breeze!
June roses, fresh roses, fair roses, gay roses,
Alluring their lovers, the bees.

Did you think that because your heart mourned in anguish
A beautiful love time fled,
You never would, never could, feel joy or gladness,
That hope and ambition were dead?
Now laugh at the sighing that darkened your life so;
Be hopeful, take courage, and—stay!
Remember fresh roses, fair roses, rare roses,
Will come every June-time, always.

—BELLE A. HITCHCOCK.

THE MOST BEAUTIFUL BIRD.

The most beautiful bird in the world is the quezal and its habitat is the forests of Central America. It is not larger than a wild dove and has a head dress that is exactly like an antique helmet in shape while a flashing golden green plays over it. The plumage of the body does not lie in orderly rows, feather fitting into feather, as in most birds, but the plumes are boldly waved and overhang the body. The immense feathers, like jewels, flash forth their beauty in the richest emerald green imaginable. The two middle feathers of the tail are streaked with this beautiful green, while the remainder of the feathers composing the tail, which is three feet long, are black and white. The breast and lower part of the body of the quezal are scarlet.

It is a sacred bird in almost all of Central America today, and its killing and exportation is frowned down upon almost everywhere, and in many places there is quite a severe fine and long imprisonment for any one who dares to disturb the royal creature. Because of traditional belief throughout Central America and because of its freedom-loving propensities Guatemala has used the bird as the symbol of freedom on its coat of arms. No bird is allowed to be kept in captivity because it is believed that the heart of the quezal breaks when thus deprived of liberty. It has been found impossible to keep the bird alive in a cage.

When Cortez landed in Mexico he found temples and sacred buildings erected in honor of the quezal. The feathers of the quezal were considered more valuable than gold, and the killing of the sacred creature was a national crime, punishable with death. Every year quezal hunters were sent out by the Emperor of Mexico to gather feathers from the body of the quezal. This was done by catching the birds with bird lime, very carefully abstracting the two long green feathers from the middle of its tail and then liberating them again. Only the Emperor was permitted to wear the quezal feathers. It was the insignia of royalty. Montezuma's famous crown was

made of hundreds of the green tail feathers, upheld by fine strips of precious wood and bound together with fine gold, so that when the crown was put on, it stood almost three feet above the head of the wearer. Then his cloak was made of almost equally precious bright blue feathers and on arms and ankles he wore rings of solid gold. His belt was gold set in gems and he bore in his hand a golden spear set with the richest jewels of the secret mines of Central America. Thus was Montezuma clothed when he sat in council; so was he clothed when he met the empire-plundering Cortez and his band of men.

In these sacred temples of the Aztec world quezal worship was one of the popular religions of the day; and the only other use the feathers of these beautiful birds were put to besides being worn in the crown of a monarch was in decking the likenesses and figures of the Aztec gods and the battle insignia of the imperial warriors.

The mythology of the Central Americans is almost wholly lost; but one of their most beautiful legends is concerning the quezal bird's creation.

Once a great man, says the legend, named Quezalcoatl with a great heart and a noble countenance arose in Central America. He was born in Tlapallan, the Land of the Sunrise, which lies across the sea and never is darkened. Within his face was love and in his eyes the shining of the sun. His beard, beautiful in color flowed to his breast and his look was filled with a magnetic charm of calmness and of peace. He grew from youth to manhood in the sunland of Tlapallan, then he crossed the sea to the land of Mexico. His craft was a mighty sea-shell and it rode the waves as if it rejoiced in its mastery of the tempestuous power of the wayward ocean. Clothed in pure white, he wandered through the land, accepting offerings only of fruits and flowers. Gentleness, friendship and love was the doctrine of his life. Where he trod the earth became gay with seed; and fruitfulness, even to prodigality,

overspread the fair face of the land. Barren fields became rich, rich lands became prodigal. Cotton spread up everywhere. Maize grew to such dimensions that a man could carry only one ear at a time. Fruit filled the land with its fragrance; flowers filled the air with delightful perfume and singing-birds of most amazing and bewitching beauty flew in freedom through the world. So sweetly did they sing that they entranced men's souls and warriors ceased to think of war and bent the knee to listen while enemies forgave each other and hatred was as if it had not been. Rejoicing came and love gave strength to men and loveliness to women while naught was heard throughout the land but the music of the stars and the singing of the birds. But one excelled in beauty and glory. Scarlet was its breast, green its soft body while its tiny helmet-crested head shone with a golden brilliancy of light and color equaled only in intensity by the hues springing into life from its brightly-feathered tail. Wherever this bird came men felt and realized that the God Quezalcoatl was nigh—in fact, some even swore that the bird and Quezalcoatl were one, only changed in shape through the mirage of their eyes and the entrancement of their ears. Be that as it may the people learned to know the shining bird as the bird of their sun god and they called it Quezal. It was the Golden Age of Beauty and of Fruitfulness; but at last there came a day of Death when

Tezcatlipoca, the Mystic God of Darkness, mastered Quezalcoatl by drugging him with a poison that aged and weakened him and filled his heart with longing to return to Tlapallan. So he went down to the shore of the sea and stepped into his mighty shell canoe and went out into the sea never to return. Then the maize grew small and the cotton died and the hearts of men awoke again to war. The birds no longer sang in the gloaming of early dawn, famine and pestilence visited the land while crime and poverty banqueted in royal style upon human misery and wretchedness.

In the bloody battles of the day Quezalcoatl's temples were thrown down and destroyed and his priests fled from place to place, having no where to lay their heads and being hunted like criminals by their merciless pursuers. At last only a few of the faithful remained to worship the once powerful Quezalcoatl and these performed the rites and ceremonies in the deepest of the deep forests in the mysterious mountains.

Then Death came and took these faithful ones, too, and now palms and creepers cover the ruins of the last of the altars. Yet through all the ages of time since then one creature has remained unchanged and beautiful and free. It is the quezal. And it may be seen in the tall and dreamy forests that clothe the backbone of Central America, flitting from tree to tree in all its ancient glory and splendor.

JOHN A. MORRIS.

AN EFFECTIVE PROTECTION.

An interesting fact, vouched for by the natives and confirmed by competent European observers, is that the Baya, or "Bottle Bird," of India, after weaving its nest with wonderful ingenuity and art, affixes about the entrance to its odd-shaped home numerous tiny clay balls.

These clay balls serve as so many candlesticks for some extremely odd candles, the candles in question being nothing else than fire beetles, which, in that part of the world, glow with a brilliancy un-

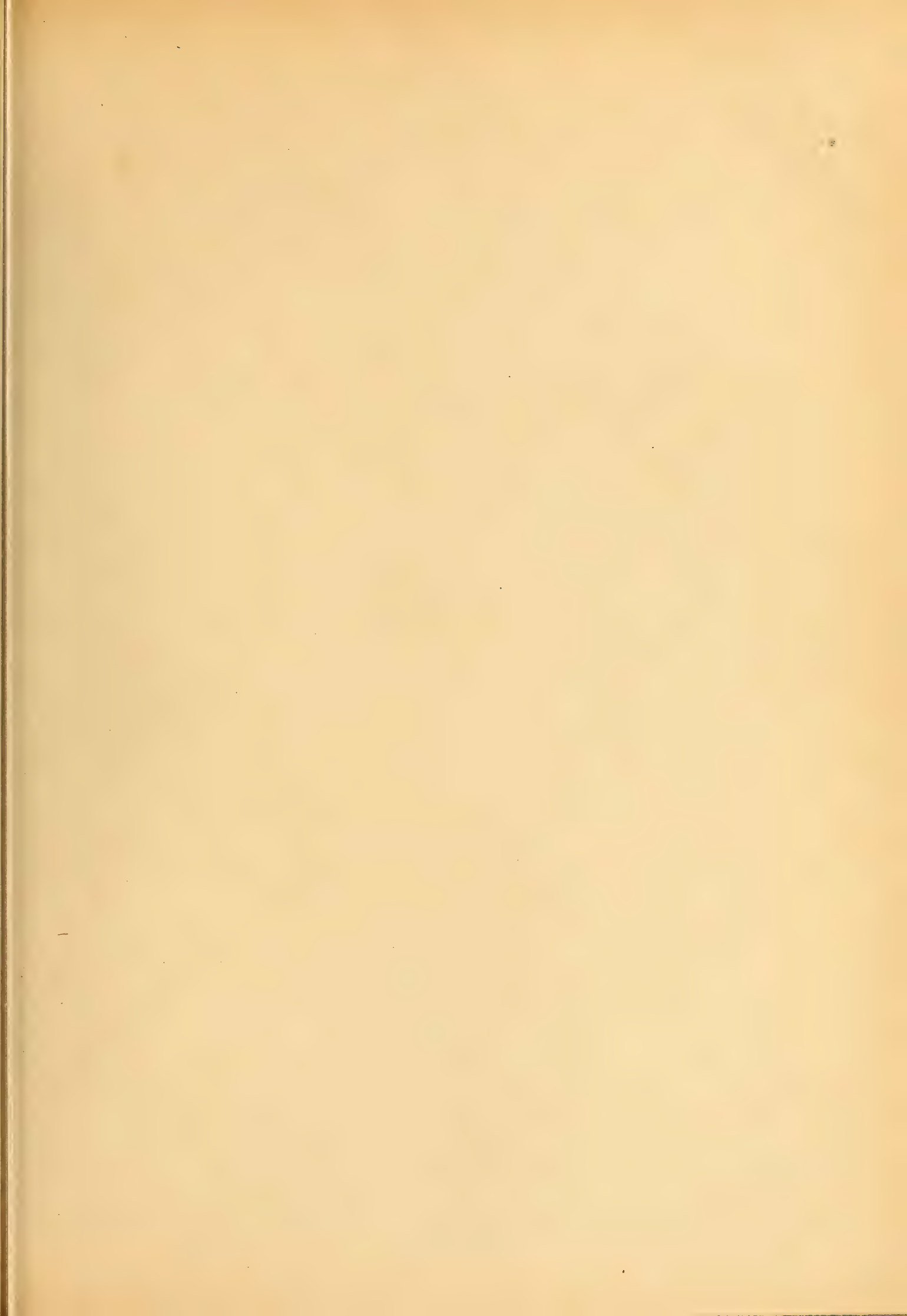
known to the natives of colder regions.

The birds catch the beetles and stick them, while alive, of course, into the clay balls, where they remain and furnish quite an illumination.

If the object of the captor in thus utilizing his prisoners is to protect himself from his numerous enemies, he is thoroughly successful.

Snakes and all others who prey upon him are frightened away by the lights with which he guards his home.

LOUISE JAMISON.





FROM PAINTING BY MARY E. MURPHY.

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THE MONARCH OR MILKWEED BUTTERFLY.

(*Anosia plexippus*.)

This beautiful butterfly takes one of its names from the Milkweed (*Asclepias*), a genus of common, yet attractively flowered plant upon the leaves of which its larvæ feeds. It is one of our most common butterflies, is quite hardy and probably produces several broods each season.

It is generally believed that this species is migratory; in the fall traveling southward in swarms, and returning in the spring, it lays its eggs on the leaves of the various species of Milkweeds. These eggs soon hatch tiny larvæ, or caterpillars, which begin to eat at once and grow rapidly. During the period of its existence as a larva, which is about ten days, it remains contentedly on the same plant, only moving in order to obtain a new supply of food, or to seek shelter from storms or the burning rays of a hot sun. While in the larval form, it moults or sheds its skin five times. After the fifth moulting it becomes more restless and moves up and down the stem of the plant, or may even leave it, going to some other plant or object, such as a fence. Very soon it attaches itself with a sticky substance, and forms a beautiful chrysalis which resembles clear green china, ornamented with gold spots. The chrysalis hangs for about twelve days, when it changes to a darker color and

soon breaks, releasing the full grown butterfly. There are four stages in the development of the butterfly; first, the egg, which is laid on the leaf of the Milkweed; second, the larva, which feeds upon the leaves of the plant; third, the resting period in the chrysalis, where the larva is changed into the adult butterfly, and fourth, the adult stage, which may be either male or female. With the exception of the first stage, all are illustrated on our colored plate.

Dr. W. J. Holland says in his popular work on butterflies of North America: "This butterfly is a great migrant, and within quite recent years, with Yankee instinct, has crossed the Pacific, probably on merchant vessels, the chrysalis being possibly concealed in bales of hay, and has found lodgement in Australia, where it has greatly multiplied in the warmer parts of the island Continent, and has thence spread northward and westward, until in its migrations it has reached Java and Sumatra, and long ago took possession of the Philippines." It has also appeared in England and is common on the Cape Verde islands. In fact, this butterfly is destined to become established in all countries where the Milkweed plants are found, and it will be in truth the Monarch of the butterfly world.

MARY E. MURPHY.

ONLY A SONG.

Out in the apple tree, swinging and singing,
Swinging and singing its heart's jubilee,
Sits a gray catbird in modesty clinging
Deep in the foliage where no eye can see.

List to his roundelay, rippling and ringing,
Hour after hour, the green branches through.
Showers of song o'er sad hearts thus he's flinging,
Cheering and healing while hidden from view.

—CORA MAE CRATTY.

BATHS IN THE CATBIRD'S GARDEN.

It was afternoon in the Catbird's garden. By right of possession it always had been the Catbird's garden, since for years without number she and her songful mate, their children and their grandchildren had dominated its precincts. They were life tenants, and seemed as much a part of the household as Tilly, the Maltese cat, who appeared to recognize their rights and was apparently on rather good terms with them. True, she had one time climbed the old apple tree and brought down, first one young Catbird, then another, and finally the nest—but that was in her young days, long ago, just about the time that her mistress joined the bird club. A summer yellow-bird had once domiciled herself in the apple tree and Mistress Catbird doubtless had to make it quite unpleasant for her before the intruder saw matters aright and moved her half-completed nest piecemeal into a friendlier neighborhood.

Various afternoon toilets were now in progress in the garden. A fat robin, his large wings wide-spread, rested flat on the grass against his red breast, with his broad back to the warm sunlight. The Catbird approached the half-empty crock of water beneath the sassafras, took a few meditative sips and then stepped into it. Robin's back was turned that way, but he quickly hopped to his long legs and ran hurriedly toward the Catbird, who retired into the tree as if recognizing a superior foe. The selfish robin, who appeared desirous of tyrannizing over both water and sunshine, stood by the pool and drank a few drops before going worm-hunting into the back garden. From the grapevine came the cardinal and took a good bath, splashing the water recklessly high. While he bathed a tiny gray chickadee hung about and finally ventured upon a switch overhanging the water, which he eyed longingly. He

was now in range of the cardinal's splashings, and there the cunning little fellow perched and obtained a surreptitious bath. Every time the cardinal splashed chickadee fluttered his wings and in course of time was as wet as his heart could desire, nor did the good-natured cardinal seem to mind his companionship.

A second robin, marked "young" by the motley unfinish of his coppery vest, flattened his body on a limb close to the other pan high in "Little Phil's willow." On either side an English sparrow stubbornly attended him, boldly curious and determined. Dame Catbird, too, in her new fall suit of very light grey, stepped close to the water and stood in it a second, but the proximity of the robin and the sparrows was annoying to her and she vanished. Then the robin suddenly plumped into the water. He looked keenly about before giving a tremendous splash which made the unmannerly sparrows retreat to a dry distance. After the splash he stretched his neck out until he looked akin to a snake as if still apprehending danger. Then a number of vigorous splashes ensued. He was nothing if not thorough, and if such as he visited the pan often its half-empty state was explained.

When he at last emerged he was a sorry-looking image of a bird, with his feathers clinging close to his dripping frame, but he hopped up to a sunny spot in the willow and there preened and straightened out his coat industriously. He knew just how to do it, opening one wing with a hearty shake, then another, then his tail. After shaking himself all over he dug his bill deep into his breast feathers many times, combing and arranging them deftly, and wiping the moisture from his bill against a twig. His toilet lasted long enough to be wearying, and, in accord with hygienic rules, he either fell into a quiet day-dream

or really slept. At any rate, he remained perfectly motionless for a long time, till a door opened into the garden. This disturbed him, and he fluttered across the wall and out of sight. My attention was diverted for a space of ten minutes or more, and when I looked at the willow again there sat a freshly dripping robin in the very spot where the other had made his toilet. It was impossible then to tell whether it was the same bird or not, he was so wet, yet it is not unusual for them to begin a bath all over just when it appears to have been finished and forgotten.

Now a dainty young redstart took a very timid little bath which was also disagreeably attended by some Johnny Bull sparrows. This faint-hearted little fellow hopped in and out of the pan five or six times with a pretty flutter of the wings each time. His coloring was em-

phasized, and it was difficult to tell which were his most fascinating points—olive-green coat, silken white vest, pure yellow trimmings, or that fan-tail of black and yellow which he only closed in order that he might again open it with all the coquetry of a court lady. He did not want his finery very wet.

Meanwhile, two pigeons preened their wet feathers on a neighboring roof, having evidently found a bath elsewhere than on the Catbird's premises, and Tilly sat close by the old well, licking her silvery paws and rubbing her face with them in a graceful, dignified manner. When I filled the two baths with fresh water she immediately paused long enough to run to one under the sassafras and thirstily drink it almost dry, despite the fact that the Catbird, who had not yet succeeded in bathing, scolded her close overhead.

ELIZABETH NUNEMACHER.

SPRING FLOWERS.

The dogwood, white as drifted snow,
Now blossoms in the sheltered wood;
The winds its falling leaflets blow
Like snowflakes o'er the hillside road.

And violets push through waving grass
Their dainty heads of tender blue;
They bow beneath the wind's caress
And pearly drops of shining dew.

Like a pure white star the bloodroot peeps
Up through the rich brown leaf-mold, where
The yellow dogtooth violet keeps
Its lily head bowed as in prayer.

And by the brook, where the moss bank dips,
With lighted torch in hand, Spring came,
And crowned the pink azalea's tips
With a wealth of the glowing flame.

—CHRESWELL J. HUNT.

THE FERRET.

(*Putorius furo.*)

It seems almost incredible that the ancestor of any animal which has been domesticated by man, should be unknown. Yet this is the case regarding the origin of the common Ferret. Nearly all modern scientists are agreed in believing it to be a descendant of the polecat (*Putorius foetidus*), and that it has been modified through the influences of domestication. Some of the earlier naturalists thought its ancestor to have been a wild species living in Africa, which was finally exterminated and became known only in the domesticated state. Many of the students of animal life who have considered the Ferret to be a distinct species, have based their belief on the fact that while the polecat withstands the rigors of a severe climate in northern Europe, the Ferret is very susceptible to cold and only survives an ordinary winter when protected by the artificial warmth obtained under domestication. They also consider the color of the Ferret's fur (usually whitish or yellowish and a little darker on the underside of the body), the pink eyes, and the seeming gentleness and tameness of its nature, as additional evidence that it is a distinct species. However, it is well known that all albinos are delicate and do not easily withstand severe changes of any kind and, though the Ferret is smaller and weaker than the polecat, this is not an unusual characteristic of all wild animals that have been bred in captivity for a number of generations. Although the albino Ferret is the more common form, there are individuals that are much darker in color, even approaching that of the polecat. These are often called "Polecat Ferrets."

In the earliest classic writings of both the Greeks and Romans there are records of the Ferret. It was the *Iktis* of Aristotle, and the *Viverra* of Pliny. In his *Natural History*, Pliny speaks of the Ferret as one of two varieties of the weasel in the following language: "The one, wild, larger than the other, and known to the Greeks as the '*Ictis*': its gall is said to be very efficacious as an antidote to the sting of the asp, but of a venomous nature in other respects." Strabo, a celebrated Greek geographer who lived at the time of Christ, and who wrote a notable work in which he describes Europe, states that the Ferret was brought from Africa into Spain.

The Ferret is not as active as the polecat, though in other respects it resembles that animal very closely. It has the same sanguinary instincts and even when its appetite is fully satisfied, it will continue to attack and kill other animals for the mere pleasure of satisfying an insatiable frenzy and an intense love of blood. It attacks reptiles and birds as well as mammals. It usually seizes the animal at the back of the neck, tearing the flesh and releasing its hold only when its prey is disabled. The Ferret observes more caution in attacking reptiles, seeming to realize the dangerous character of venomous species.

The Ferret is used to some extent in hunting rabbits, but more generally for the extermination of rats and other mammalian vermin. It must be especially trained for whichever purpose it is to be used. As a rule, a Ferret that has only been used in hunting rabbits is afraid of the larger rats. Rats when cornered are courageous fighters, and have been



known to resist the attack of an untrained Ferret and finally to have killed it. The courage and the sanguinary nature of the Ferret comes to it gradually and the usual method of training a "ratter" is to begin with young rats or those that belong to the smaller species. Even before the first century of the Christian era, the Ferret was used in rabbit hunting. Pliny says, "The Ferret is greatly esteemed for its skill in catching them. It is thrown into the burrows, with their numerous outlets, which the rabbits form, and from which circumstance they derive their name, and as it drives them out, they are taken above."

Dr. Brehm thus describes the method followed in Europe, for hunting rabbits with the aid of the Ferret: "The hunt is begun in the morning. The Ferrets are carried in a basket or box lined with something soft or in a game pouch. On arriving at the burrow the hunter looks for all the outlets and places before each of them a net about a yard long and fastened to a large ring; then the Ferret enters the principal outlet and this is also closed against egress in a similar manner. As soon as the rabbits become aware of the presence of the intruder, they rush out and are caught in the nets and killed. The Ferret itself is prevented from killing them either by a muzzle or by having its teeth filled, and a little bell is suspended from its neck so that its whereabouts may be constantly known. As soon as it reappears at the outlet, it is taken up, for if it should enter the burrow a second time it would lie down to rest and its master would be compelled to wait for it for hours. It is very important that it be taught to respond to

a whistle or call." The call is not always effectual and frequently coaxing will not induce the Ferret to return to the surface. In such instance a rabbit is tied to a pole and thrust into the burrow. "No Ferret can withstand such a temptation; its teeth close on the rabbit, with which it is drawn out of the hole."

The Ferret does not become attached to either the individuality or the abiding place of man. Its owner is its master only so long as it is confined or held in restraint. As a rule, when given its freedom, an untamed nature asserts itself and the Ferret soon escapes and establishes a home for itself in some rabbit's burrow, where it thrives during the summer season, but perishes on the approach of the cold weather of winter. It is said that only in rare instances is the Ferret completely tamed. There are cases on record, however, where it has followed its master in perfect submission and has not taken advantage of perfect liberty to escape the bounds of domestication. In a few instances the Ferret has shown some affection for its master, but retains this high degree of tameness only so long as it is carefully and amply fed. It has been known to attack babies that have been left alone and having once tasted their blood, will attack anyone who interferes. The Ferret may be considered a useful pet only for the purpose of ridding our buildings or fields of harmful animals or for the purpose of hunting. It is a graceful animal and, when not hunting, usually lies quietly in the place provided for it, but it has an unpleasant voice, consisting of a growl, or a shriek when in pain.

THE SINS OF THE SUNDEW.

Prickly and pulpous and blistering and blue,
Livid and starred with a lurid dew.

—Shelley: "The Sensitive Plant."

It is often the case with lovers of the marvelous in nature, as in other lines, that they stretch eagerly toward objects which are foreign or alien to their own environments, neglecting in their admiration of the unattainable, some wonderful production that is close at hand, but overlooked in consequence. This is quite apt to be the case with the nature student, be he scientific or a mere untechnical lover of the plant world. How eagerly and with what zest we absorb all details pertaining to those wonderful productions of the tropics; of the marvelous blossoms, butterflies and birds, particularly of those exaggerated specimens if one may so term them. Of the great, gorgeous king butterfly (*Morpho cypris*) of South America whose rich coloring is enhanced by his chameleon-like powers of changing his skin or colors, from a vivid peacock green to a rich plum, and from that to a flame-like pink, thence back to his original regal tint, and who, it is said, can be distinctly seen at the distance of half a mile. We gaze in artistic rapture at the multitude of richly plumaged birds that are sent to us from "India's coral strand," peopling, in our mind's eye, some tiger infested jungle with their dazzling colors. We wander in rapture through some botanical collection of rare importations, of which travelers have related various wonderful tales in regard to their numerous developments, artistic or instinctive, as, for instance, the *Nepenthes* of the East Indies, whose dainty, vari-colored pitchers, swinging gracefully from their yard long tendrils, beguile unwary insects to their destruction in the liquid, narcotic depths, where by the aid of digestive fluids they convert their victims into a sort of soup, the nutriment of which the plant rapidly absorbs into its system.

In becoming interested in these wonderful productions of an unfamiliar country, we neglect to observe from our own door step, as it were, those creations just as amazing, and perhaps even more so, because of the greater minuteness of detail but as wonderful and beautiful in their intricacy of arrangement as the most magnificent blossoms of "all the Asias."

It is, to a certain extent, true that among our plant neighbors there is lacking that luxuriant brilliancy of color that is so noticeable in tropical productions, which seem to feel it a matter of necessity that they should adorn themselves in rainbow luxuriance of tint to sufficiently advertise their wares to the public, a disbursement of which is as vital a necessity in the economics of plant life as in our own so called administration of civilization.

Even our insignificant little chickweed, a familiar dweller in every garden and foot-path way in the United States and for which we see no use save as a refreshing salad for imprisoned canaries, is as keen in the interests of the propagation of its kind as the most gorgeous production of the universe, and draws insect attention by many artful wiles to its honey product beloved by bees, thereby impelling that class of visitors to carry from stamen to stigma that fecundating dust so necessary for the fruition of the little star-like flowers, and for which service they so hospitably entertain the winged host, appealing to them for an exchange of benefits as assiduously as those luxuriant flowers of the lands of the tropical sun.

But perhaps these children of the soil, which to our own limited powers of comprehension seem the most inscrutable, and with which most of us are less familiar, there are none more

surprising and wonderful than the carnivora or insectivorous plants which are fairly plentiful through the United States, but very much less conspicuous in appearance than their numerous relatives of the tropics. However, with his ample opportunities for exploration and experimentation in all countries, it is to the little Sundew (*Drosera rotundifolia*) of our swamps and low lands, that Charles R. Darwin has devoted a monograph of nearly three hundred pages, all of which contain interesting subject matter relating to the construction, habits, attributes and manifestations of this little, humble dweller of the moist lands.

You would never dream, when you are first made acquainted with the "personnel" of this unobtrusive little gourmand, that therein did lurk such murderous proclivities, for it is an innocent appearing vegetable growth, but which really has no respect for the omnipotent command of "thou shalt not kill." It consists of a bunch of somewhat oval leaves, five or six in number, forming a sort of silvery, pubescent rosette, peeping out of the tall swamp grasses. But oh, the insidiousness of the little hypocrite, whose every motion is freighted with death to the tiny winged hosts, who note not the fatality of the seductive, glistening drops of honey-dew displayed to their undoing.

There seems to be really more than the usual physical force of average vegetation evinced by the tiny, round leaves, which are not more than three-fourths of an inch in diameter, and their manners and methods of securing their nutrition form one of the most interesting studies of the out-door world. There are usually numberless dead insects scattered about the little plants in witness of their death dealing propensities, but for a satisfactory understanding of their subtle methods of procedure, it is better to insinuate oneself into some comfortable position in the proximity of one of the sundews, where one can observe them at leisure, though a questionable form of enjoyment perhaps, for it is anything but amusing to the insect "game" that are caught in their net, from which but a small part have the strength to escape.

The Sundew leaf is covered with what are called gland bearing filaments, which look not unlike little hairs, and of a reddish color changing to a purplish blue at and tips, which thickly cover the leaf, sometimes to the number of two or three hundred upon one surface. A tempting drop of a white liquid which resembles honey or dew is exuded by these glandular hairs, and from which the plant derives its common title of Sundew, as its "dew" does not disappear in the sun's rays, and is a drop which proves a temptation and a snare to the insect world who are drifting about in search of liquid sweets. When the victim once alights on a leaf, his fate, unless he be of mighty strength, is determined, for the deceptive looking drop is of the nature of glue, and his tiny feet are held as if in a vise, while the innocent looking hairs or tentacles slowly bend over him one by one, exuding more glue and completely enveloping him in their octopus-like embrace, at the same time insidiously rolling him toward the center of the leaf, which also gradually coils in or over the victim, and forms a sort of cavity not unlike a temporary stomach, and at the same time moistening him with a saliva-like fluid which is proven by chemical analysis to be of the same nature as the gastric juices employed in animal digestion. Following this tragical episode comes the operation of actual digestion, the period of which is determined by the age of the leaf and the structure of the insect, whom death usually relieves in about fifteen minutes after capture, but it takes from twenty-four hours to five days for complete assimilation, and the opening of the leaf and tentacles for further capture.

The Sundew will accept a luncheon of dead flies if nothing better presents itself, or even a bit of beefsteak or decoction of boiled cabbage will set its numerous teeth in operation, but a living creature is more quickly absorbed by its process of benevolent assimilation, for its struggles for liberty stimulate the glands to a greater activity, and if the game is likely to prove too powerful for the immediate tentacles, outlying glands will reach forward to assist in the capture, and in extremes, even separate leaves have been

known to give aid. Scientists maintain that such animal food is a necessity to the highest prosperity of the Sundew, although it seems to have all of the usual qualities attributed to the plant world from which to secure an existence, but it is an assertion of Darwin's that Sundews furnished with an abundance of animal food thrive much better and are far superior in growth and luxuriance to plants subsisting on root nourishment alone. To show the amount of what one might term physical strength these Sundews are possessed of, it is only necessary to state that small butterflies are sometimes captured, and the Rev. H. M. Wilkinson is authority for the fact that he had found large dragonflies with their bodies held securely between two leaves, which leads one to the conclusion that these Sundews

are examples of mind controlling matter element embodied in vegetable substance. Darwin and later scientists have demonstrated that morphia has the same effect upon Sundews as upon the animal system, and the same experiment has also been tried upon the Mimosa or sensitive plant, which Claud Bernard chloroformed, and thereby putting it into a condition of tetanus or lock-jaw, and it passed through the varied forms of consciousness, semi-consciousness, etc., the entire vegetative apparatus going on and performing its entire functions as usual, but the nerve or senses unconscious and non-sensitive. Camphor is an active stimulant upon the Sundew, inciting unusual motion among the tentacles which are rapidly influenced thereby.

ALBERTA FIELD.

A WISE HORSE.

In the city of Hutchinson, Kansas, the street cars are drawn by horses. Old Joe served the street car company for several years, and was considered one of their most trusty horses. When needed for duty and the harness placed on him, he would walk quietly from his stall to his place before the car and stand there until the driver came and everything was made ready for the start. In the same way, when unhitched from the car, he would go to his stall and wait patiently for food and freedom from harness.

Not long ago the "Car Company" decided that Joe was getting too old to be of much service on the line, so he was sold to a farmer who was to come the next day to take him away to the country.

The last morning in his old home, Joe was harnessed and turned loose as usual, but when the driver reached the car the

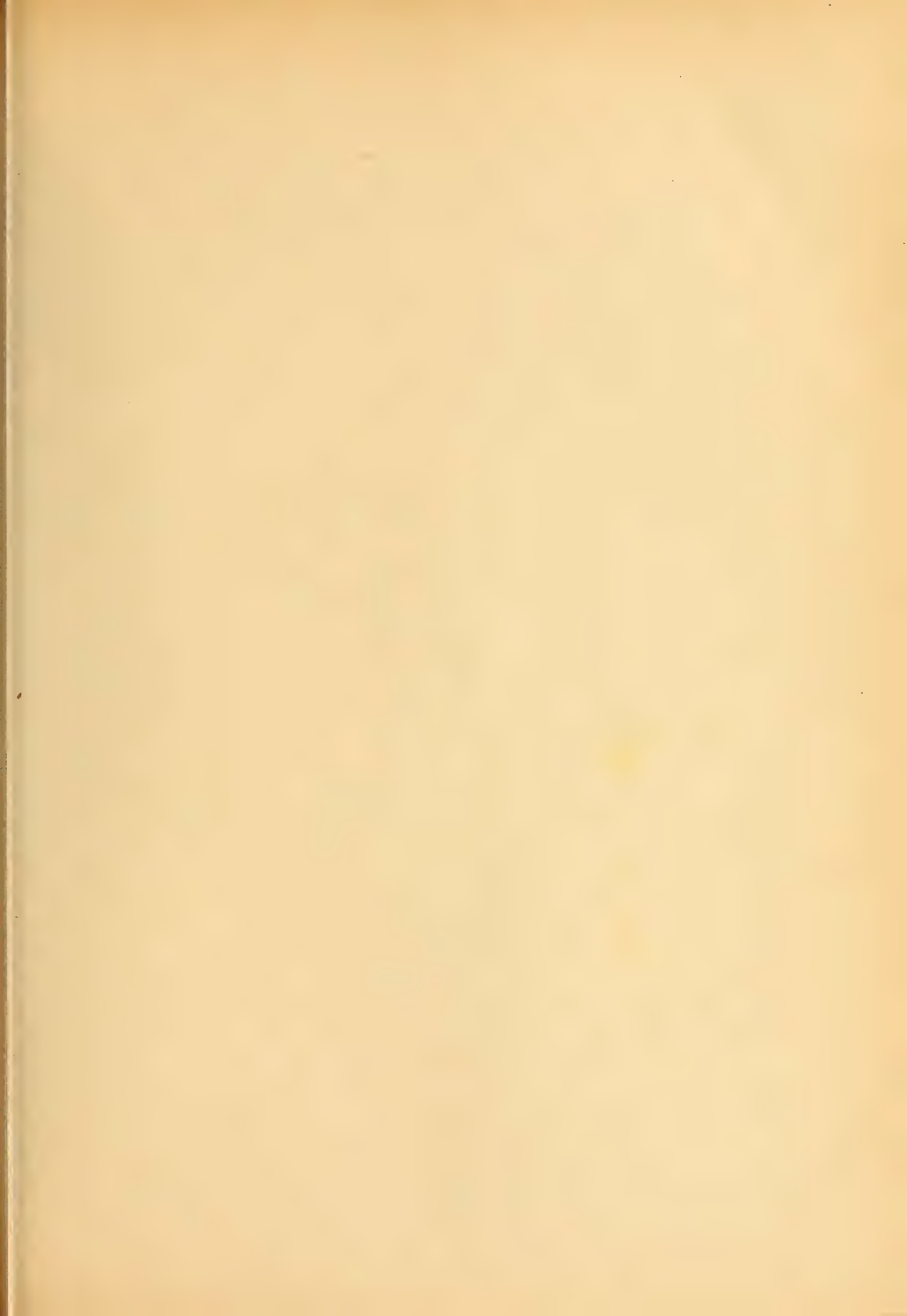
horse was nowhere to be seen. Another horse was substituted and a stable boy sent in search of the truant. After some time the old horse was found at the blacksmith shop, where most of the company's work was done.

"Didn't you bring him here?" asked the blacksmith. "I found him at the door and supposed you wanted his feet attended to, as one shoe was off and another was loose. I fixed him all right, anyway."

The wise old horse had been troubled by the pain in his feet, and knowing where relief was to be found, had gone to obtain it. The street car company paid for the shoes, and old Joe went to his new home with his feet in good condition.

Does it not prove that horses are able to reason to a greater extent than is generally supposed?

MARY McCRAE CULTER.





CALLA LILY.

(*Richardia africana*.)

The so-called Calla Lily is an herbaceous plant belonging to the Araceae and is closely related to calamus, Jack-in-the-pulpit, and arum. It is a native of South Africa, and like most of the order it prefers a very moist soil and warm climate. It has comparatively large saggitate leaves; is nonoecious, the staminate and pistillate flowers being in close proximity on the same plant.

The plant is also known as Lily of the Nile, African Lily and Ethiopian Lily. The word Calla is supposed to be derived from calyx, the first protective covering of complete flowers. The plant is very extensively cultivated in all countries, especially the warmer countries and islands. It is to be found in gardens, hot-houses and conservatories. The plant has evidently been known for many centuries.

Some very misleading opinions and

names exist with reference to this plant. In the first place it is not a lily at all, belonging to an entirely different order. The name Lily of the Nile is wrong because it is a native of South Africa. To speak of the handsome flowers is wrong because the part mostly admired is not a flower in the botanical sense, but simply a leafy involucre covering of a pure waxy white color. The inflorescence proper is the yellow central cone-like structure known as spadix and upon which the small non-attractive staminate or pistillate flowers are closely crowded. Calla, according to the etymology of the word, is wrong for reasons already given, that is, it is not a true calyx, but rather a calyx or corolla-like involucre. It no doubt serves the function of a corolla in that it attracts insects for the purpose of effecting pollination.

ALBERT SCHNEIDER.

JUNE.

Hail, hail! O virgin Queen! the feast is spread;
The wide air's hush'd in glad expectancy,
The eager earth's green-rob'd, flower-garlanded;
The bidden guests atremble wait for thee.
Behold! In golden clouds of perfume sweet
Crown'd with the flaming glory of the dawn,
Like some fair naiad from her chaste retreat,
She glides across the million jewel'd lawn;
Her breath unseals the secret of the rose,
Her smile woos forth the coy young violet,
Before her sceptre wand, all Nature flows
In one vast harmony to music set.
Hail, hail! Our joy is at its highest noon;
Oh, welcome, Queen! O hail, sweet virgin June!

—WILLIAM HENRY TOMPKINS.

AIGRETTES.

An incident which occurred in a fashionable millinery establishment a short time ago prompts the reiteration of that oft told story of the Aigrette.

A young woman was ordering trimmings for her hat; among other things the milliner suggested a wing. "Oh, no!" she exclaimed. "I could not conscientiously wear a bird's wing." But when a long, beautiful Aigrette was shown her, she did not hesitate a moment in taking it. It was simply a case of ignorance on her part that permitted the wearing of an Aigrette rather than a bird's wing.

For awhile, these delicate, airy plumes were superseded in fashion's behest by the compact, glossy breast of tern and grebe. Then, instead of wearing the bridal attractions of the white heron, women poised on their hats that thick, impenetrable coat of feathers which Nature has given the grebe to fit it for its life among the waves; but again we see the delicate filaments of the Aigrette waving above the smiling face of the philanthropist, or quivering over the bowed head of the worshipper. Has not the story been told often enough for all to know that the egret or white heron

wears these plumes only during the nesting season, and therefore they can be procured at no other time? The herons nest in great colonies in the marshes. Each rude nest of sticks contains from two to five eggs. It is only after these are hatched and the parent birds are bringing food to their young that the plume hunter reaps his harvest. The birds are shot as they come near the nest, and the skin containing the plumes quickly cut from them, sometimes before they are dead. There is nothing left for the nestlings but slow starvation, so that an Aigrette represents more actual cruelty and suffering than any other barbaric adornment.

The people of Florida, recognizing the charm which the heron adds to their landscape, have passed laws for its protection, but these laws cannot always be enforced even in that state, and the home of the heron is all along the Gulf Coast. There is no law but the law of fashion that will save this graceful creature from extermination. When women refuse to wear the Aigrette, then will the little egret build its nest in the solitudes and rear its young unmolested.

CAROLINE H. PARKER.

THE SOWER.

Who is it goes sowing,
Up and down the roadside,
Clovers, red and white,
Buttercups in yellow,
And the pale muskmallow,
With the daisies bright?

'Tis the wind a-blowing
In the dark of night;
Wind it is goes sowing,—
Teasels, too, and brambles
Sows he in his rambles,
Blown to left and right;
And, for dusk and darkness,
Drops the primrose light.

—CORA A. MATSON DOLSON.

The beautiful is as useful as the useful.—*Victor Hugo.*

BIRDS AND NATURE

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BIRDS AND NATURE.

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SEPTEMBER, 1903.

No. 2

DAY.

Faster and more fast,
O'er night's brim, day boils at last:
Boils, pure gold, o'er the cloud cup's brim
Where, spurting and suppressed it lay,
For not a frothflake touched the brim
Of yonder gap in the soleil gray
Of the eastern cloud, an hour away;
But forth one wavelet, then another, curled,
Till the whole sunrise, not to be suppressed,
Rose reddened, and its seething breast
Flickered in bounds, grew gold, then overflowed the world.

—ROBERT BROWNING.

SEPTEMBER.

"You must not forget September!"
Could I fail me to remember
That brave woodman, and his stroke
At the gnarled and iron oak?
Or his swift steel's circling flash,
Smiting at the stubborn ash,
While the pheasant's jewelled wing,
Like a firework you up-fling,
Flashes from the dying fern,
Where the brambles crimson burn?
That's September. Though he's old,
Little reck he of the cold.—

Brave September!

—WALTER THORNBURY, "The Twelve Brothers."

THE LARK SPARROW.

(*Chondestes grammacus*.)

The humble Lark Sparrow or Lark Finch cares little for the cultivated door yards of man. Unlike the chipping sparrow, which delights in human companionship, this handsome bird seeks the quiet of the prairie, the stubblefield and old pastures which are somewhat wooded. It may also be seen along country roadsides, where it delights in frequent dust baths. Small trees and shrubs are a necessary feature of its environment, from the tops of which it shows its happy nature by uttering the notes of a continuous and melodious song. Truly the name Lark is not a misnomer for this attractive bird, for its song is not only wonderfully pleasing, but it also, like the larks, has the habit of singing while on the wing. Words are inadequate to describe the tenderness and sweetness of the Lark-Sparrow's beautiful song. It is "one continuous gush of silvery notes, accompanied by a metallic tremolo." The description of Dr. Robert Ridgeway is the most satisfactory. "As the bird perches upon the summit of a small tree, a fence post or a telegraph wire, his notes may be heard throughout the day—in the morning before those of any other, and late in the evening, when all else but this unwearied songster is silent; indeed, often have we been awakened at midnight by a sudden outburst of silvery warblings from one of this species. This song is composed of a series of chants, each syllable rich, loud and clear, interspersed with emotional trills. Though seemingly hurried, it is one continued gush of sprightly music; now gay, now melodious, and then tender beyond description—the very expression of emotion. At intervals the singer falters, as if exhausted by exertion, and his voice becomes scarcely audible; but, suddenly reviving in his joy, it is resumed in all its vigor until he appears to be really overcome by the effort."

Many persons may become acquainted with this interesting bird, for it has an

extensive range, covering the interior of the United States, and it nests from Texas to Manitoba. A variety which has the habits of its eastern relative is found throughout the United States west of the plains.

The Lark-Sparrow, or, more properly, Lark Bunting, as it is neither a true sparrow nor a finch, bears several common names, each having reference to some particular habit. It is given the name Road-bird because it frequently seeks food in roadways and because of the pleasure it finds in frequent dust-baths on sunny days. It is called Quail-head, for it has the habit of running through the grass with lowered head in a manner similar to that of the quail. In some localities it has been called the Potato-bird because of its apparent fondness for the potato beetle. And the striped plumage of its head has caused it to be called by the unpleasant name Snake-bird.

Its home is usually placed on the ground at the base of a tuft of grass, a coarse weed or in cultivated fields at the base of stalks of corn. It may also build in low trees or bushes. The material of which the nest is constructed varies, usually consisting of the finer plant growths of the immediate vicinity. As a rule, a Lark-Sparrow's nest is hard to locate because of the bird's habit of taking flight only after skulking through the surrounding vegetation to a point some distance from the nest.

Of the economic value of the Lark-Sparrow Dr. Sylvester Judd says: "The Lark-Sparrow is, with the exception of the dickcissel and grasshopper sparrow, the most valuable grasshopper destroyer of all the native sparrows. More than half of its animal food (fourteen per cent of the total) consists of these insects, and in June they constitute 43 per cent of the diet. On the prairies and plains this bird does much good in helping to check invasions of the Rocky Mountain locust."



FROM COL. CHI. ACAD. SCIENCES.

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LARK SPARROW.
(*Chondestes grammacus*.)
About Life-size.

THE MOCKINGBIRD IN ILLINOIS.

Dwellers in the southern portion of our great commonwealth and all who are so pleasantly situated as to enjoy intimate acquaintance with the Mockingbird, may not understand the eagerness with which we accept the musical crumbs from their bountiful table—the heartiness with which we welcome the annual spring gifts to the north, of their surplus of Mockingbirds.

Throughout the central and northern part of the State, and especially above the fortieth parallel of latitude, "*Mimus polyglottos*" is not so numerous that we may not readily recall each pleasant hour spent in his company—each delightful entertainment we have enjoyed from the seemingly inexhaustible program of song.

He is our king of songsters—the peer of all our American birds in vocal abilities, and his wonderful variations are accepted as the gems of over-flowing, intoxicating bird melody. In consequence he is a much-talked-of bird when his presence is noted a little north of his regular habitat. His talents have been heralded until the mere mention of his name is sufficient to arouse keen interest, while the advent of a single pair will afford a pleasing topic of conversation for many days.

It gives him an added charm for us, while listening to this prince of mimics, to experience that twinge of uncertainty ever present in the thought and hope of meeting him again on the morrow.

There is an old natural law, inexplicably but undeniably true—teaching us that "a prophet is not without honor except in his own country." So also are the most enthusiastic praises of this bird, sung by other than the dweller in the land of sunshine, orange-groves and Mockingbirds.

Perhaps it is because of his numbers (we should certainly be unwilling to assign another reason), that he is a seem-

ingly undervalued bird at his old home in the southland. However, with us, he is assured a warm and cordial welcome when with each succeeding season he extends his range farther and farther northward, founding new homes in latitudes that knew not his ancestors. Localities formerly noting the Mockingbird as a rare or occasional visitor, now proudly claim him as a regular summer resident.

Our attention was first called to this northern invasion, by discovering a Mockingbird's nest in July, 1897. The ensuing year, this single pair of birds had increased to three pairs, all of which succeeded in rearing families undisturbed. During the season of 1899, six pairs were observed nesting in the immediate vicinity, and in 1900 and 1901, eight and eleven pairs respectively were located within a four-mile radius. A continuation of this material increase for a few years will result in establishing this formerly-restricted southern bird as one of the common summer residents of the northern states.

We remember as boy observers, when the presence of the Mockingbird was regarded as an accidental occurrence, to have had no greater desire than an opportunity of hearing its song and our highest ambition was to look upon the nest and eggs of this far-famed bird. Upon a farmer's announcement of the arrival of a "genuine southern Mockingbird" at his home, our boyish hearts would leap with enthusiasm. Incidentally, this declaration always necessitated a trip to the country, but as often resulted in a disappointment. Upon inspection our Mockingbird invariably persisted in being a common brown thrasher, which bird might with grace and honor wear the title were it not for his inimitable cousin.

In localities where "*Polyglottos*" is little known, he is often confounded with the thrasher, but there should be no dif-

faculty in distinguishing the two birds nor in differentiating their songs. While the song of the thrasher is a repetition of notes (generally two before a change) it has little likeness to the songs of other birds. The Mockingbird, however, repeats each part of his running and changing melody from three to nine times (occasionally more, but always divided in sets of three notes), and these notes are exact reproductions of the songs of his bird-neighbors.

The Mocker's song is almost wholly influenced by the notes and calls of the various birds making their homes in his immediate vicinity. In one instance I was only made aware of the presence of a family of sparrow hawks through a search occasioned by hearing their shrill Killic! Killic! Killic! screamed from the modulating throat of a Mockingbird.

We often hear of caged Mockers, reared from nestlings in captivity, imitating with some degree of accuracy the songs of forest birds, but the wonderful exactness of an unconfined bird's productions, I am convinced, can only be attained by it through a close contact with the other species.

The song of the brown thrasher may be described as a composition of originalities, but in listening to the Mockingbird, an experienced ear will recognize with clearness and distinctness—the carol of the robin—the excited cry of the sparrow hawk—the vociferous Killdeer! Killdeer! of the bird that named itself, while the caw of the crow, bob white's clear and ringing whistle and the sweet, plaintive song of the bluebird are reproduced with astonishing exactness. Following a short pause (as though turning to a new page), we hear the English sparrow's harsh monotonous chirps drift into that sweetest of all bird-melodies, the meadowlark's song. Then rings out the blue jay's resonant challenge—the rasping, discordant shrike notes—the liquid "cherolee" of the red-wing—the soft mournful "coo" of the dove—the vivacious "I've cheated ye" of the goldfinch, and the rippling, tinkling, bubbling notes of the bobolink.

Indeed, his abilities as a mimic were well described when a darky admirer de-

clared "he kin jest beat a jay-bud at his own hollerin'."

To hear him at his best, we must choose a mellow moonlight night in June when the soft warm breezes from the southland awaken in his heart a joyful mood. We say night, for while his nocturnal lay is in no way the superior of his day efforts, coming as it does when the world is asleep and other bird voices are stilled, we will doubtless be more deeply impressed with the wonderful performance of this living phonograph.

Giving him our undivided attention, we close our eyes and in fancy travel hither and thither—o'er field and forest—anywhere he leads us with his song. Now in the sweet-smelling wood when we hear the whistling titmouse and the cardinal—now near the creek's bank when we hear the voice of the belted kingfisher, at once so realistic, we may almost see him quickly rounding the bends and curves and rattling his way up-stream.

Back through the fields he quickly leads us and we pause for the moment by a dense hedge thicket when a shrike's grating notes fall upon our ears. We are near into a meadow now, for wafted to us in tones clear and sweet we catch the song of a happy meadowlark. Caw! Caw! comes lazily over the breeze to us, and we picture a dusky crow slowly flapping his great wings after a ludicrous attempt at soaring. Caw! Haw! Hock! Hock! Hock! Have we frightened a flock of these impudent fellows from their resting place in the grove? Else why this sudden change in their notes? Ah! we recognize it now—the crow's war-cry. A shrill scream follows—the cry of a harassed red-tailed hawk, and we open our expectant eyes—eager to witness the mid-air battle between these two natural enemies. Instantly the spell has vanished, and as though resenting instead of acknowledging our enthusiastic encores, our entertainer shifts the scene and flits away to another stage.

* * * This charming bird has another performance—a rare exhibition of his talents that should never be omitted from a description of his accomplish-

ments, and it is to be regretted that he favors the bird-loving world so grudgingly of this his best number.

For lack of a better name—(which is in itself sufficient proof of its rarity), we will call it a dropping song. Suddenly launching into the air with his whole soul thrown into his voice, he seems to reach the consummation of earthly bliss. Quivering and fluttering, he floats into an ecstasy of delight, and the rich, bubbling notes which fairly crowd each other as they fall from the silver-tongued throat, scarcely reach the ground ere followed by the little musician as he “slides down the scale of his own music.”

It is his one grand effort, and for a moment he lies spent and gasping upon the surface—physically exhausted in his attempt to tell the world of the joys of living.

* * * But while infatuated with his song and personality, we must not forget that the Mockingbird has objects

in view other than delighting our ears with his music. He comes north with his sweetheart to found a happy home among us and rear his interesting family. Many are the ups and downs to overcome, and many are the perils to face in this the unknown country, ere he and his mate have finished their summer's work. Here it is we may find the opportunity to prove to him our appreciation of his efforts, and with a neighborly spirit repay him with what he most needs and most desires—protection. He needs protection from his natural enemies—snakes and cats, but his chief source of trouble comes from the small boy, whose wantonness and cruelty of nature has never been understood.

He is a sturdy pioneer, and if properly encouraged in his ventures to the northland, there should be no reason why his voice may not, within a few years, be commonly heard in the parks and drives about Chicago.

ISAAC E. HESS.

A WORD.

You who have strenuous delved, and late and long,
For smoothest rhyme, or just the phrase preferred,
Shut up your dictionaries—hear that bird
Out in your maples! Free and clear and strong,
Upwelling from his pulsing breast, his song
Spontaneous, sweet, to full crescendo stirred
By love and life! What charm of art, what word
Premeditated, so can thrill a throng?
Shelve your thick tomes—go forth and taste with him
The essences of sunlight and clear dews,
Of wealthy winds from violet banks astray;
Spurn the worn rut, wing on to starry views,
Then shalt thou sing, and sing our hearts away!

—LULU WHEDON MITCHELL.

TWO GOOD NEIGHBORS.

For a long time a pair of catbirds have had a nest in the bushes in my garden. They often come quite close to the house, in fact, I have seen one of them on the porch when the canary was there. They take great interest in him, and come out to greet him every morning as soon as his cage is taken to the porch.

Their favorite resort is a small red-bud tree near by, and there they come to talk and enjoy themselves.

They sing very beautifully when they are so inclined, but I regret to say that they do not often feel inclined.

Seeing them so often and at such close range we have become quite well acquainted with them.

In a low cedar tree, just within the garden fence, a pair of robins once built their nest and commenced housekeeping. Scarcely had their young been hatched when our cat, Tom, sneaked up the tree, and after a long, hard struggle, succeeded in catching the mother bird, who would not forsake her babies. A day or two later, the father bird failed to come home, and we supposed that he had been shot. At any rate, he was never seen again.

Immediately, the catbirds took up the care of their little orphan neighbors. Every time a berry was brought to the home nest, it was carefully divided and shared with the robin babies, or, if it was too small to be divided, turn about was taken. In this way the robins had

as many full meals as had the catbirds.

Poor papa catbird had no time to himself at all, for everyone knows what gourmands young robins are and, then, young catbirds do not have fairy appetites. Every night he occupied the robin nest to keep the young birds warm, and from his position he could keep watch over both families.

Indeed, at any time, if a lonely peep came from the orphans, he was just as willing to go to them to comfort them as any other philanthropist would have been.

At the first peep of daylight, mother catbird bustled out to see how her foster children had fared through the night.

Her cares had been heavy enough before, and this business of caring for two families soon told on her.

These two little missionaries never seemed to weary of their work, and when the robins were ready to leave their nest they were taken out and practised up and down, and back and forward until they were quite able to fly. And, oh, what a relief it was when they could take care of themselves! Not that one moment of care had ever been begrudged them, but it had been a great responsibility.

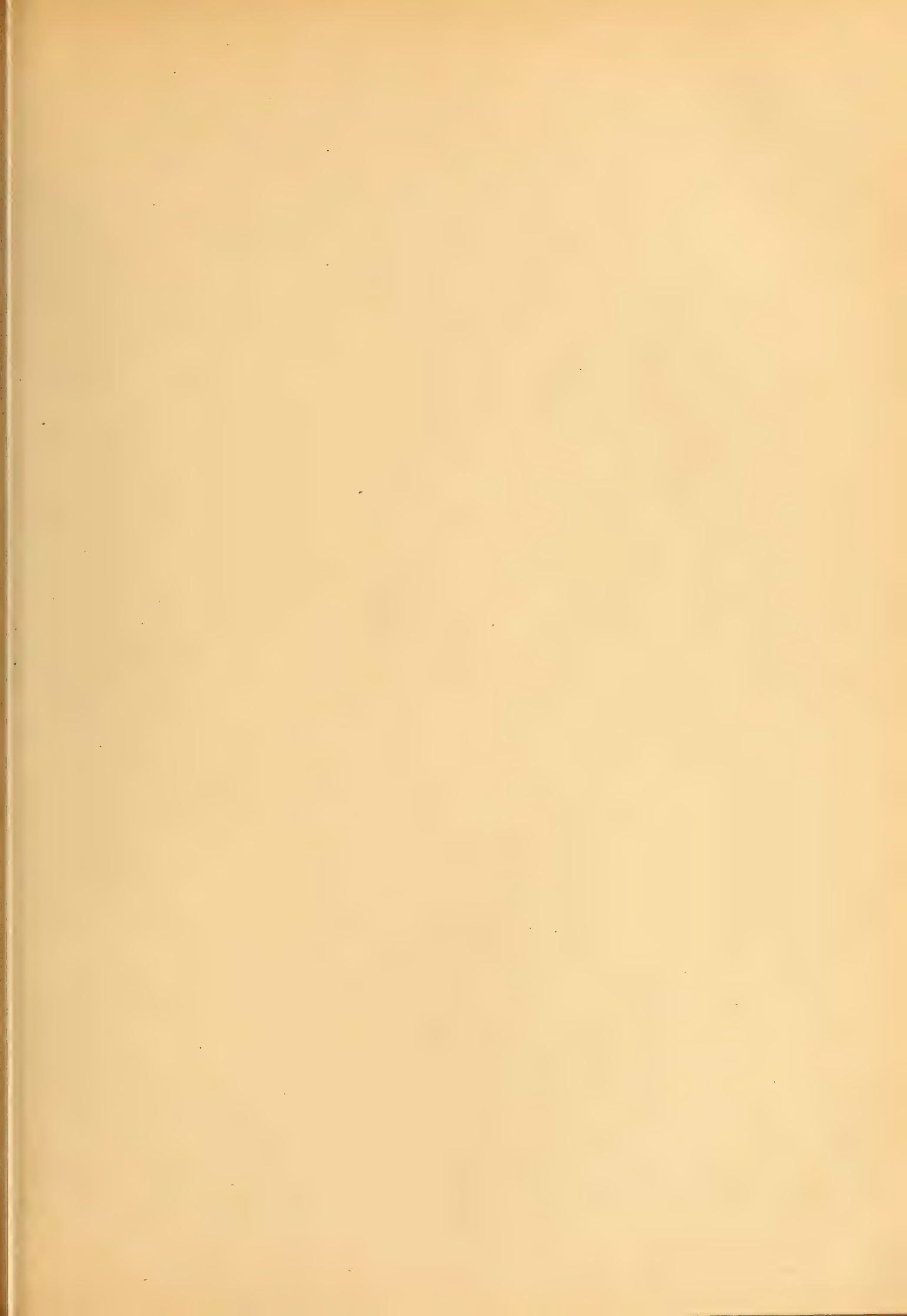
There always seemed to be a tie of relationship between the two families, and many pleasant reunions were held through the summer.

ELIZABETH ROBERTS BURTON.

THE MILKWEED.

A shimmering mist adown the roadway glints,
Soft silken draperies on the breeze are swung,
Empearled with dew, aglow with rainbow tints,
A bridal veil upon the sweet air flung.

—ILLYRIA TURNER.





FROM COL. CHI. ACAD. SCIENCES.

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WHITE-TAILED PTARMIGAN (Winter plumage).
(*Lagopus leucurus*).
" " Life-size.

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THE WHITE-TAILED PTARMIGAN.

(*Lagopus leucurus.*)

The White-tailed Ptarmigan is an inhabitant of the alpine summits of the mountain ranges of western North America. Its breeding range is coincident with its geographical distribution and extends from Alaska to New Mexico, but is limited to the higher mountains and is always above timber line. This bird rarely leaves these great heights except in the most severe weather of winter, when it rarely descends below an altitude of eight thousand feet, though it has been taken at a height of only two thousand feet.

It is a beautiful bird and an excellent illustration of protective coloration, the darker color of the summer plumage well harmonizing with its somber surroundings, while the white of its winter dress matches the snow of the mountain sides. When sitting on its nest "so nearly does the bird resemble the gray boulders which surround her on every side, that the discovery of the nest is largely due to accident." At such a time, the bird is flushed with difficulty. One observer writes: "Twice have I escaped stepping upon a sitting Ptarmigan by only an inch or so, and once I reined in my horse at a time when another step would have crushed out the life of a brood of nine chicks, but an hour or so from the egg. In this case the parent crouched at the horse's feet and, though in momentary danger of being stepped on, made no attempt to escape until I had dismounted and put out my hand to catch her. She then fluttered to the top of a rock a few feet distant, and watched me as I handled the young, constantly uttering low anxious protests." It is said that sitting Ptarmigans have been lifted from their nests and the eggs handled, the bird simply uttering an occasional sound not unlike that of a sitting hen. In the autumn the Ptarmigan is a much shyer bird and when

closely approached will "run about, holding the tail elevated and looking very much like a white fan-tail pigeon.

Major Bendire in his "Life Histories of North American Birds," gives the notes of Mr. Dennis Gale, who studied the habits of two broods of White-tailed Ptarmigans; one containing seven and the other five chicks. He believed that the males took no part in the parental cares, but the mother birds were very devoted. He says: "There was a disposition, clearly proven with the chicks of both broods, to hide when the hen signaled danger; but some of the older ones flushed and flew at least fifty yards. The females were very tame and would not flush; in fact, they could not be induced by mild treatment to leave the place where the young had hidden. They walked around me so close that I could have touched them with my hand, and showed a marked concern for their broods, clucking in a manner very similar to our domestic hen."

No description will more graphically portray the characteristics of the White-tailed Ptarmigan than that prepared by Mr. T. M. Trippe for Dr. Coues' "Birds of the North-West." Mr. Trippe studied this bird in the mountainous regions of Colorado and writes as follows: "The White-tailed Ptarmigan is a very abundant bird on the main range, living entirely above timber line the year around, except during the severest part of winter, when it descends into the timber for shelter and food, occasionally straggling as low as ten thousand feet. It begins to change color about the middle of March, when a few specks of blackish-brown begin to appear in the plumage of the oldest males; but the change is very slow and it is late in April before there is much black visible, and the close of May, or early in June, before the summer plumage is perfect. The Ptarmigan

builds its nest in the latter part of June. The nest—which is almost always placed on or near the summit of a ridge or spur, many hundred feet above timber-line—is merely a depression in the ground, lined with a few straws and white feathers from the mother's breast. While on her nest, the bird is very tame. Once, while walking near the summit of the range, I chanced to look down and saw a Ptarmigan in the grass at my very feet; at the next step I should have trodden upon her. Seeing that she did not appear frightened, I sat down gently, stroked her on the back, and finally putting both hands beneath her raised her gently off the nest and placed her on the grass, while she scolded and pecked my hands like a setting hen; and on being released, merely flew off a few yards and settled on a rock, from which she watched me till I had to go away. Late in July I came across a brood of young ones, apparently not more than four or five days old. They were striped with broad bands of white and blackish-brown, and looked precisely like little game chickens. The mother flew in my face and hit me with her wings, using all the little artifices that the quail and partridge know so well how to employ, to draw me away; while her brood, seven or eight in number, nimbly ran and hid themselves in the dense grass and among the stones. About the first of September the Ptarmigan begins to change color again; but, as in the spring, the process is very gradual, white feathers appearing, one by one, and taking the place of the dark ones. The white on the lower parts enlarges first; then the white area of the wings; and next, white specks appear on the upper parts, becoming larger and more numerous as the season wears on; but so gradual is the change, that a month after it begins, there is not much difference in the plumage perceptible, the general aspect being that of summer. The dark areas predominate throughout October and, as I have been informed by persons who have killed them throughout the year, it is late in December or in January before they become pure white, some few birds showing occasional dark spots even throughout the latter month.

"The Ptarmigan feeds upon the leaves

and stalks of various alpine plants. It also lives largely upon insects, and in winter is said to subsist on the buds and leaves of the pines and firs. Its flesh is light colored, though not as white as that of the gray grouse, to which it is usually considered inferior for the table. In localities where it is seldom molested, it is very tame, and I have been informed by persons whose word is worthy of belief, that they have frequently killed them with sticks. Nimble of foot, the Ptarmigan frequently prefers to run away on the approach of danger, rather than take wing, running over the rocks and leaping from point to point with great agility, stopping every little while to look at the object of alarm. The flight of the Ptarmigan is strong, rapid and at times sustained for a considerable distance, though usually they fly but a few hundred yards before alighting again. It resembles that of the prairie hen, consisting of rapid flappings of the wings, alternating with the sailing flight of the latter bird. The note is a loud cackle, somewhat like the prairie hen, yet quite different; and when uttered by a large flock together, reminds one of the confused murmur and gabble of a flock of shore-birds about to take wing. It is a gregarious bird, associating in flocks throughout the year, except in the breeding season.

"The colors of the bird closely resemble those of the surrounding objects, at all seasons of the year. In its summer plumage of speckled black and gray, it is very difficult to detect while sitting motionless among the gray and lichen-covered rocks. The Ptarmigan is apparently well aware of this, and often squats and remains quiet while one walks past, trusting to its resemblance to the surrounding rocks to escape observation. In summer the white areas of the plumage are completely hidden while the bird is squatting, although plainly visible on the wing; in winter the first appearing black specks are concealed beneath the white feathers; and at this period, as I am informed, is almost indistinguishable from the snow. On being pursued, it will dive into the snow and reappear at a considerable distance."

SEEING THINGS RIGHT.

Once, on gazing far up into the sky, watching for a bird, which I had seen a minute before—a fly passed near my nose. Immediately I thought I had espied my hawk, near the clouds.

At another time, on looking for a bee to pass near where I stood, a pigeon crossed my vision, at a distance. The pigeon became the looked-for bee, to me.

A small thing may become dispropor-

tionately large to us, when near—while a great thing may seem very small at a distance.

An eminent educator has defined education as the power to see great things large, and little things small.

Let us seek for education of this kind, rather than to judge the proportion of things by our first imperfect vision, too often influenced by imagination and our previous expectations.

MATHILDE C. HELLWIG.

BOUNCING BET.

A long, long time ago, in some old-fashioned garden,
With queer box-bordered beds, shapely, trim and neat,
There grew a slender blossom, faintly pink, and dainty,
Prized because of perfume delicately sweet.

Mayhap 'twas Arlington, it might have been Mount Vernon,
Some quaint garden, cultured many years ago,
Wherein this blossom sweet, encompassed by close borders,
Like nun in cloister safe, nothing else did know.

But when neglect crept in and spoiled the old-time garden,
And the close box border fell to gaping wide,
Then did this dainty blossom, plucking up her courage,
Slip out through the hedge and ramble off outside.

The freedom turned her head; the new world was entrancing,
And she tarried not for sunshine or for rain,
But ran off to the meadows, under fences creeping,
So she wandered far, by country road and lane.

And this is why we find her, any day in summer,
By the roadside corners, straying at our feet,
Grown a country blossom, so venturesome and hardy,
Still the old-time perfume keeps her ever sweet.

—JAEN FLOWER.

THE BLACK-BILLED CUCKOO.

(*Coccyzus erythrophthalmus*.)

Drouth weights the trees, and from the farmhouse eaves
The locust, pulse-beat of the summer day,
Throbs; and the lane, that shambles under leaves
Limp with the heat—a league of rutty way—
Is lost in dust; and sultry scents of hay
Breathe from the panting meadows heaped with sheaves—
Now, now O bird, what hint is there of rain,
In thirsty heaven or on burning plain,
That thy keen eye perceives?

—MADISON CAWEIN, "The Rain-crow."

The Black-billed Cuckoo, like its relative, the yellow-billed cuckoo, is burdened with a number of popular names, such as Rain Dove, Rain Crow, Wood Pigeon and Kow-Kow, as well as some others that are of a purely local character. The names Rain Dove and Rain Crow have been given to both the cuckoos because their interesting notes are more frequently heard during damp, cloudy weather or at the approach of a storm. This habit has given rise to the somewhat popular impression that their oft repeated calls were indicative of the approach of rain storms. Madison Cawein expresses this belief in verse, in lines following those already quoted:

But thou art right. Thou prophesiest true.
For hardly hast thou ceased thy forecasting,
When, up the western fierceness of scorched
blue,
Great water-carrier winds their buckets bring
Brimming with freshness. How their dip-
pers ring
And flash and rumble! lavishing dark dew
On corn and forest land, * * *

These birds belong to a rather large family, there being about one hundred and seventy-five species, the majority of which live only in the tropics and only thirty-five are residents of the Americas. The breeding habits of the cuckoos are very interesting and peculiar. They are usually shy and solitary birds, seldom leaving wooded regions. The well known European cuckoo lays its eggs in the nests of smaller birds, and the young

are fed and cared for by the industrious foster parents. Robert Mundie says that in Scotland the popular name of the cuckoo is gawk and that the people of that country have chosen the word as a synonym for a fool. Why they have done so, "it is not easy to say, for there is more cunning about the cuckoo than about most birds."

The Black-billed Cuckoo very closely resembles the yellow-billed species not only in its general habits and plumage, but also in its mode of flight, its food and in its various notes. It has an extensive range, covering that portion of North America east of the Rocky Mountains, breeding from Florida northward to Labrador, Manitoba and Assiniboia. A few individuals winter in the United States, near the Gulf of Mexico, but the larger number pass this period in the West Indies, Mexico and Central America, and not a few continue their southward flight into South America. The range of the yellow-billed species, though very similar, is not quite as extensive, as it does not reach as far either toward the north, the west or the south.

Both the Black-billed and the yellow-billed species frequent similar localities. They are "especially partial to the shrubbery along water courses, lakes, ponds, hillsides bordering wet meadows, overgrown here and there with clumps of bushes, and the outer edges of low-lying forests, while they are far less often



BLACK-BILLED CUCKOO.
(*Coccyzus erythrophthalmus*).

observed in high and dry situations any distance from the water." The call notes of the two species are scarcely distinguishable though that of the yellow-billed cuckoo seems to be the louder of the two. Perhaps their most common note is one that is uttered in a low and pleasing voice that would seem to indicate perfect contentment and sounding like "noo-coo-coo-coo." Another pleasing note is a softly uttered and oft-repeated "Coo-coo." Mrs. Olive Thorne Miller, who has made a careful study of the habits of the Black-billed Cuckoo, describes its alarm note as sounding like the syllables "Cuck-a-ruck."

There is no doubt that parasitism is practiced to some extent by the Black-billed Cuckoo. Its eggs have been found in the nests of several species of the smaller birds, such as some of the warblers, the catbird, the pewees and the robin. However, such instances are comparatively rare, while its eggs have been quite frequently found in the nests of the yellow-billed species. In the transactions of the Canadian Institute, Dr. C. K. Clarke has published the following interesting observation: "In an orchard we discovered a Black-billed Cuckoo sitting in a chipping sparrow's nest, and the bird did not attempt to move till we almost touched it. It now seemed very evident that the case against the bird was a strong one, and when a Cuckoo's egg was found in the nest the chain of evidence was complete. The egg was hatched and produced a tyrannical young Cuckoo, who turned his companions out of the nest and made himself as comfortable as possible as long as was necessary. Two of us saw the old Cuckoo actually sitting in the nest, and there was no doubt about the matter." Another interesting instance, that well illustrates the erratic habits of this bird, is related by Mr. J. L. Davison in "Forest and Stream." He says: "I found a Black-billed Cuckoo and a mourning dove sitting on a robin's nest together. The Cuckoo was the first to leave the nest. On securing this I found it contained two eggs of the Cuckoo, two of the mourning dove, and one robin's egg. The robin had not quite finished the nest when the Cuckoo took possession of it and filled

it nearly full of rootlets; but the robin got in and laid one egg."

Even Pliny, that wonderful Roman student of Nature, knew of the parasitic habits of the European cuckoo. In an interesting account, he says: "It always lays its eggs in the nest of another bird, and that of the ring-dove more especially,—mostly a single egg, a thing that is the case with no other bird; sometimes however, but very rarely, it is known to lay two. It is supposed, that the reason for its thus substituting its young ones, is the fact that it is aware how greatly it is hated by all the other birds; for even the very smallest of them will attack it. Hence it is, that it thinks its own race will stand no chance of being perpetuated unless it contrives to deceive them, and for this reason builds no nest of its own: and besides this, it is a very timid animal. In the meantime, the female bird, sitting on her nest, is rearing a suppositious and spurious progeny; while the young cuckoo, which is naturally craving and greedy, snatches away all the food from the other young ones, and by so doing grows plump and sleek, and quite gains the affection of his foster-mother; who takes a great pleasure in his fine appearance, and is quite surprised that she has become the mother of so handsome an offspring."

The statement of this classic writer, in regards to the ring-dove's nest is not substantiated by facts, for the cuckoos seemingly lay their eggs only in the nests of insectivorous birds. Regarding Pliny's deductions as to the cause of the cuckoos' parasitism, Curier says that it is not a very good reason, but that we have not been able to discover a better one. Some observers believe that the parasitic habits of the European cuckoo is caused by the slow development of the eggs within the body of the bird, thus causing a considerable period of time to lapse between the depositing of the eggs. This condition would make it quite impossible for the mother bird to attend to the incubation of her own eggs. Dr. Robert Ridgeway, in "Birds of Illinois," gives the following observations of Colonel S. T. Walker, who "has found young birds," of the yellow-billed cuckoo "in the nest just ready to fly, others half fledged,

and some just hatched, and at the same time one or two fresh eggs. He was not sure whether other cuckoos laid in the same nest or whether the same bird continued to lay while sitting. From what he has seen, however, he is inclined to believe that the latter is the case, and that 'the old bird utilizes the warmth of the young first hatched to continue the incubation of eggs subsequently laid.' Similar cases have been noted, by other observers, in the breeding habits of both the yellow-billed and the Black-billed species. It is quite possible that the slow development of the eggs may be the sole explanation of the peculiar and erratic nesting habits of the American cuckoos, and Dr. Ridgeway has stated that "it is not at all improbable that they may eventually become completely parasitic, like their European cousins."

The Black-billed Cuckoo is not a social bird, and it is seldom that any number of pairs are found nesting near each other. Its nest is seldom placed higher than six to eight feet above the ground and is found in quite a variety of trees and shrubs and in hedges. It has also been known to nest on the ground and on old logs. The nest is rather crudely constructed of twigs, shreds of fibrous bark and small roots. The lining, when present, consists of various soft vegetable materials, such as fine fibers, moss, catkins, dried leaves, the flowering heads of some flowers, those of the cudweed are often selected, and many other similar materials. The nest is usually built in retired places, and the bird will generally desert it if it becomes aware that the site has been discovered. The Cuckoo will often remove its eggs to another nest if it has been disturbed. The duties of incubation and the care of the young are shared by both parents. Major Bendire says: "They appear to be devoted parents, and the fact that they are occasionally willing to abandon their young to the mercy of foster parents appears rather unaccountable, to say the least, especially when it is positively known that they occasionally remove their eggs, as well as the young, from one nest to another in

order to better protect them from possible harm. In my opinion, the real causes for the so utterly inconsistent behavior on the part of some of these birds are not yet fully understood."

Though the Black-billed Cuckoo has been accused of destroying the eggs of other birds, for the purpose of eating their contents, the fact does not seem to be well established. Even if they do have this habit it is practiced to a very limited extent and the very large number of injurious insect larvae that they eat greatly overbalances the harm that they do in the destruction of a few eggs. The home of this shy bird is among the branches of trees, where it is concealed by the foliage and where it quietly feeds upon insect life. It destroys an enormous number of leaf eating caterpillars. It not only eats the smooth-skinned species, but also the hairy and sharp-spined ones that are usually rejected by other birds and for which the Cuckoo seems to have an inordinate taste. It also eats grasshoppers, beetles and other adult insects as well as a few snails and a limited amount of the smaller fruits.

That the Black-billed Cuckoo, as well as the yellow-billed species, should be protected and fostered has been well shown by Mr. F. E. L. Beal, who found that nearly one-half of the Cuckoo's food consisted of injurious caterpillars. As a result of his investigation he believes that "in the cuckoos we probably have one of nature's most efficient checks on the increase of these harmful species. It is said that hairy caterpillars are protected by their coats from the attacks of the ichneumon flies; if this be true, the work of the cuckoos in destroying the hairy species is complementary to that of the ichneumons, which help to destroy the smooth-coated caterpillars. Considering the number of grasshoppers, locusts, and other insects that cuckoos eat in addition to caterpillars, it is evident that from an economic point of view these birds are two of our most valuable species, and as they have not been convicted of doing any harm, they should be protected and encouraged in every possible way."

THE BIRDS OF MIDSUMMER.

To many bird students the heated period from the Fourth of July to the end of August is the least attractive part of the year. Most of our best singers of early spring and summer have finished their parental task for the present year and are now enjoying the cool shades where they doff the nuptial suit and put on one of more sombre hues, more fit for the long journey to the southland soon to come. Even the bobolink has lost the key to his tinkling music box and has retrograded to an alarming degree; his whole mind seems to be taken up with the treasures of the grain fields. One little fragment remains to us of all his joyful music, one metallic "chink," of itself quite pretty, but most unsatisfactory when we recollect the great stores of early June of which this note is but a crumb.

In spite of the passing of the spring music, this heated term is full of interest and profit to the man or woman who will defy the sun long enough to take a daily stroll in the meadows and along the borders of the woods. Two of the flycatcher family, the kingbird and the wood pewee, abound. What farmer's boy is not familiar with *Tyrannus tyrannus*? Who has not watched him drive away a hawk or crow that has invaded his domain? As his name indicates, he is a double-dyed tyrant, for he often attacks the inoffensive red-headed woodpecker and the harmless robin. Then there's the wood pewee with its monotonous "Pewee, Pewee." How the simple note suggests and emphasizes the browning leaves, the rasping locusts, the half-deserted forests, and pervading and brooding over all the shimmering, palpitating heat of midsummer.

Besides these dull-colored, unmusical fly-catchers, there are a number of more gifted birds, most of them of the Finch or Sparrow family. One of the leaders of this group, both on account of his numbers and ringing music, is our old friend of the spring, *Melospiza fasciata*, the scientists call him, but his common English name, song sparrow, suits him

better. Four others of his family, not quite so conspicuous, it is true, but each a most interesting personality in his way, may be found in the same fence corners and low bushes which afford the song sparrow his accommodations, the vesper, field, grasshopper, and chipping sparrows.

The song sparrow with his streaked spotted breast, is such a common sight that he needs no description here, but a word about the characteristic features of the others will not come amiss. One distinguishing feature well learned and kept in mind when observing and identifying in the field is worth more than a wheelbarrow load of indistinct impressions. Let me try to give you one for each of these five sparrows.

The last-named bird you can readily recognize by the coloring of the breast, from one to three spots formed by the running together of stripes. The vesper's badge is his white outer tail-feathers, which he loves to show as he lights. The grasshopper sparrow you will know by his weak, insect-like song, very much like that of the long-legged creature whose name he bears. The field and chipping sparrows, because almost identical in shape and size, are often confused, but this need not be if the bill can be seen, the color of which in the former is red, in the latter black.

An observer of more than ordinary diligence ought to find and identify at least four out of the five in one locality. In just such low fields as the vesper likes, especially where low crops like melons or cabbage are grown, you will most likely see a bird somewhat larger and more aristocratic looking than the vesper, clad in the usual dull sparrow tints, but quite unlike him in gait and voice. This bird is one of the two real larks native to eastern North America, its proper name being the prairie horned lark. In spring you will often see these birds alone or in pairs, but now they fly in small flocks of six or eight, probably the parents and their young, now all alike. In some parts of Illinois and Missouri

this bird loves to frequent the dusty roads, where it amuses itself after the fashion of an old hen in an ash heap.

The two beauties in this dull-colored group are the indigo bunting and the gay little chap in yellow and black, variously known as beet bird, thistle bird, wild canary, and American goldfinch. Both birds prefer scrubby pastures or marshy land, probably because the supply of juicy larvae for the little ones is better here than in the drier or less brushy situations. Both nest late in the season. This fact will probably help to account for their continuing in song through the hot midsummer days.

The indigo bunting selects the highest clump of leaves on the scrubby swamp oak, and half sinking his own blue into the deep fervid green of the oak leaves, proceeds to give us a medley of the notes of his brethren, stops a moment, then goes at it again, vigorously, as if in response to an encore. His wife being the more useful of the two in Nature's plan, is much less conspicuous; her tints are olive and green, to suit her surroundings, with a wash of indigo here and

there, probably indifferent to the family taste in matters of color.

The goldfinch, however, is the drawing card of the collection. Brilliant yellow with black wings and crown cap, he would be a most attractive bird, if he were as unmusical as the kingbird; but in addition to his contrasty coloring, he is a charming singer, his repertoire running all the way from the plaintive "Baybee, Baybee," uttered when he is busily engaged in helping you to harvest your beet seed, to a ripping song little if at all inferior to that of the tame canary. His undulating flight and his "chicoree" note, which rises and falls with the elevation and depression of his little body, make the recognition of the flying goldfinch a very easy matter.

In this short article I can only indicate a few of the treats that await the one who goes afield at this season with eyes and ears open to the life about him. Midsummer's birds once learned, we have gained an introduction into the busy life of fields and forests that will aid very materially in our study of the birds when spring once more brings his confusion of sound and color.

JAMES STEPHEN COMPTON.

SONG.

Oh, give the daisies half a chance,
And they will bloom beneath your feet,
And cheer your every earthward glance,
With up-turned faces fresh and sweet.

Oh, give the birds a friendly look,
And ere the summer days go by
They'll find a chink or window nook,
And rear their young beneath your eye.

Oh, give this dear old world of ours
A smile upon its journey long,
And it will fill your hands with flowers,
And sweeten all your life with song.

—ERNEST POWELL.



THE EUROPEAN CRESTED TITMOUSE.

(*Parus cristatus*.)

Wise the nuthatch and the titmouse,
Wise the bluebird and the downy,
To conceal their nests in tree-trunks
Where this monster cannot find them.

—FRANK BOLLES, "The Blue Jay."

Sprightly and restless, the Crested Titmouse of Europe frequents the topmost branches of secluded forests in northern Europe. Hopping from twig to twig, flying from branch to branch, and seeming always in motion, the little bird peers under leaves and into the crevices of the bark, diligently searching for its food of insects, of which it consumes a large number. Of a shy and retiring disposition, it has a decided liking for forests of coniferous trees, where its diminutive form and the compact foliage protect it from intruders of all kinds, while it readily finds an abundant supply of food. It is a rare bird in the central and southern parts of the European continent and in Great Britain.

Regarding the habits of the Crested Titmouse in Germany, an observer has written: "It does not leave us, and is partly a resident and to some extent a wanderer, but not so much of a wanderer as many other birds, for it seldom leaves the pine woods, and when it does it is only to visit another pine growth situated in non-evergreen woods. Its wanderings are most extended in the late autumn and in the spring. It is then to be found in small groves of pine or fir trees standing in the open country and miles away from the large forests. It may also be seen in large gardens. They hurry uneasily through the non-evergreen woods and fruit gardens which lie between the pine woods they visit on their wanderings, and are only at ease when in these latter. They also hurry with greater speed over fields or any treeless tract they may pass."

Wherever it is found it is usually a constant resident unless the severity of

the weather or the lack of food necessitates a change of locality. At such times it is often seen migrating in company with other species of the smaller birds, and it generally seems to be the leader of these small flocks. It is said that the other species will obey the call notes of the Titmouse and when danger is apparent it seems to be the first of the birds to give an alarm. Its shy nature, as well as its method of catching its food, would naturally make it alert at all times.

In an economic sense it is a most useful bird, as it feeds upon insects in all the stages of their development. It also feeds upon the seeds of various cone-bearing trees. Constantly active the crest of this beautiful bird gives it an added dignity as it seeks its food, leads a flock or quarrels with one of its kind, as it often does during the nesting season.

Probably because of its nesting habits, the Crested Titmouse seems to like those cone-bearing forests in which there are also deciduous trees. Its nest of grasses, moss, lichens, feathers, hair and other soft materials is usually placed in a hole of some tree or stump. Not infrequently, however, the deserted holes of squirrels or the old nests of crows and magpies are selected.

The European Crested Titmouse would be a popular bird and much better known were it not for the difficulty of studying the habits of so small an object in the dense and extensive forests which it frequents. Its characteristics can only be satisfactorily observed when it is compelled to seek its food in more open places.

THE FLORIDA OTTER.

As a rule, the Otter is considered mainly because of its valuable fur, which is a beautiful seal-brown and of a close, velvety growth and smoothness; but it is far more interesting as a study of nature.

The Otter is not unlike a seal in appearance. The body is long and graceful, the legs short and rather stout. The four paws have each five toes, with sharp, pointed claws. The paws are webbed, and fitted for swimming; as the Otter is an anomaly,—an animal both terrestrial and aquatic. The tail is flat, broad at the base, but tapering at the end. His eyes are small, and very black. His nostrils are large and open. His ears are small, and are set at the side of the head. His mouth is large, set with the whitest of teeth. With the exception of four large, and very strong tusks, his teeth are small, and peculiarly shaped, usually twenty in number. In weight, when full-grown, it is from twenty to thirty pounds. Once a year they produce from three to five young, and at very rare instances, as many as eight at a birth.

Before the advent of the hunter and the trapper for gain, in Florida one could often see Otters in droves of four, with, perhaps, a lot of young ones scampering about and playing along the shore of the rivers or creeks; but now it has become next to impossible to study the characteristics of them in their natural haunts, unless one were to go into the Everglades, among the Indians, who seem to be more the friends of animals than is the rapacious white man.

In the quite wild state the Otter is bold, and does not hesitate to venture forth to investigate the intentions of friend or foe; where he has cause to suspicion the wiles of guns or traps, he is as cunning and as wary as a fox; but should the conviction once come to him that man is his friend, he is very affectionate, and

makes the cutest and most trusting of pets. So quaint and winsome is he that one is almost forced to credit him with human intelligence. In a wild state, he burrows for himself a cave in the side of a mud-bank; but oftener he hunts one that nature has already burrowed for him. Sometimes his den is found in rock-holes. On some of the outlying islands on the gulf coast, one may find whole colonies of Otters which inhabit the numerous caves and passages which run in all directions underground. In making or selecting his den, he is exactly like the squirrel—hard to please. He will move three or four times a day, and then perhaps come back to his first choice. When tamed, this making of dens, and frequent moves is one of his very sober performances, and very amusing to those who are privileged to watch this sort of house-hunting.

He is very cleanly in his habits. In the wild state or in captivity, the first thing he will do after he has stretched himself and has given a few very big yawns after his nap, is to take a plunge into the water, where he takes a thorough bath. And how he does seem to enjoy it! He will dive and float, swim on his side and cut all manner of capers. Now and then he sticks up his little black, round head and shakes the water out of his whiskers, and gives a sniff at the breezes, then down he goes again, only to appear again later on, but much further away, and never where he had been expected.

When taken into a room he will first take a general survey of everything as a whole, then he will curiously examine each article separately. He will finger and sniff at the curtains as though judging as to the quality of their make and texture. Boxes he will open if he can; failing that, he will strive to turn them over in his endeavors to get at their contents. He will look up inquisitively at

the pictures, and perhaps climb up to examine them the more closely. Should he happen to set a rocking chair in motion he will back away and watch it curiously. When the motion stops, he will creep up to it sideways and cautiously give it another tap, so as to see if he can "do the trick" again. His delight at his success is then evidenced by a naive twisting about of his head, and the wrinkling of his nose. He will keep a close watch on the chair, and the moment it shows signs of stopping, he will walk up and tap it again. After a long time he thinks that perhaps he has made the thing go often enough, and he turns away, but the charm of the chair proves irresistible, so he goes back and amuses himself with it a while longer.

Should a guitar or other like instrument be placed on the floor, and the Otter happens to brush it with his paws or his tail so as to produce a sound, his expression is one of astonishment, and he will watch the instrument as though expecting an attack. As nothing of this sort happens, he walks about it sniffing it, as though trying to determine "the nature of the beast." Finding that a too puzzling problem for him to solve, he hits it again forcibly and determinedly, as though giving it a dare to come out and show its mettle. When this, too, provokes no other sign but that given by sound, he walks away, and ever after leaves it alone—as a creature altogether beneath his notice.

On a fur rug he will roll and tumble about in play just like a kitten. His skin is so flexible that in his gamboling he often seems to turn himself completely over in it. His frolicking on the rug will gradually become less and less exerting, until finally, like a tired child, he will curl himself up and go to sleep on it. Now if the Otter is young, he will, in going to sleep, suck his paw, like some babies do their thumbs. Even when grown, the male retains this habit; and his mate will sit quietly beside him, waiting for him to get up for another frolic. An interesting sight is this gentleman as he lies there with his head resting on his

right paw, and sucking his left one; and his faithful wife keeping watch over him.

A tame Otter is easily taught useful tricks, as well as the more amusing ones. Fishing, which comes natural to him, can be turned to some account, by watching him when he comes out of the lake or river. If he has a fish, take it from him and substitute some preferred tid-bit. In this way he can soon be taught to go fishing for his master. Sometimes he may be sent after wood, and though he can bring but one stick at a time in his mouth, he will keep at it until he is told to desist.

He takes an especial delight in rocking the baby. He will assume all manner of postures in his endeavors to find the one which makes the task the easier; generally he decides by lying on his back and pushing the cradle to and fro with his paws, by reaching up on the under side of it. For this reason the cradle must be made low enough so he can reach it. Usually the hind paws are employed in this labor and when one paw gets tired, he uses the other. Sometimes he will stop rocking, apparently waiting to hear if the baby is asleep, then at the first whimper, he will dutifully commence rocking again.

It is hard to find an animal which learns to love its master with truer and more intelligent affection than does the Otter. He will come up and beg to be petted, and he also delights in seeing his mate receive caresses; but he has also a jealous streak in him, and this is shown when his master pushes him away and caresses some pet other than one of his own kind.

Though it is found in warm climates, the Otter dislikes the direct rays of the sun, and will not go across a yard in the sunlight, even for food, but will skirt around in the shade of buildings or trees.

Some writers say that the Otter is awkward; this is a mistake. In the wild state he is graceful; and when first captured he is awkward only until he becomes accustomed to, and gains the confidence of man.

MARY STRATNER.

NESTING OF THE LEAST BITTERN.

(*Ardetta exilis.*)

The Bitterns and also the herons belong to the bird family Ardeidæ, a family of world-wide distribution, though the larger number of the species are found in the tropical and sub-tropical regions. The Least Bittern is the smallest American representative of this family. It is an inhabitant of both North and South America, and breeds from Central America northward to the southern limits of Ontario and Manitoba.

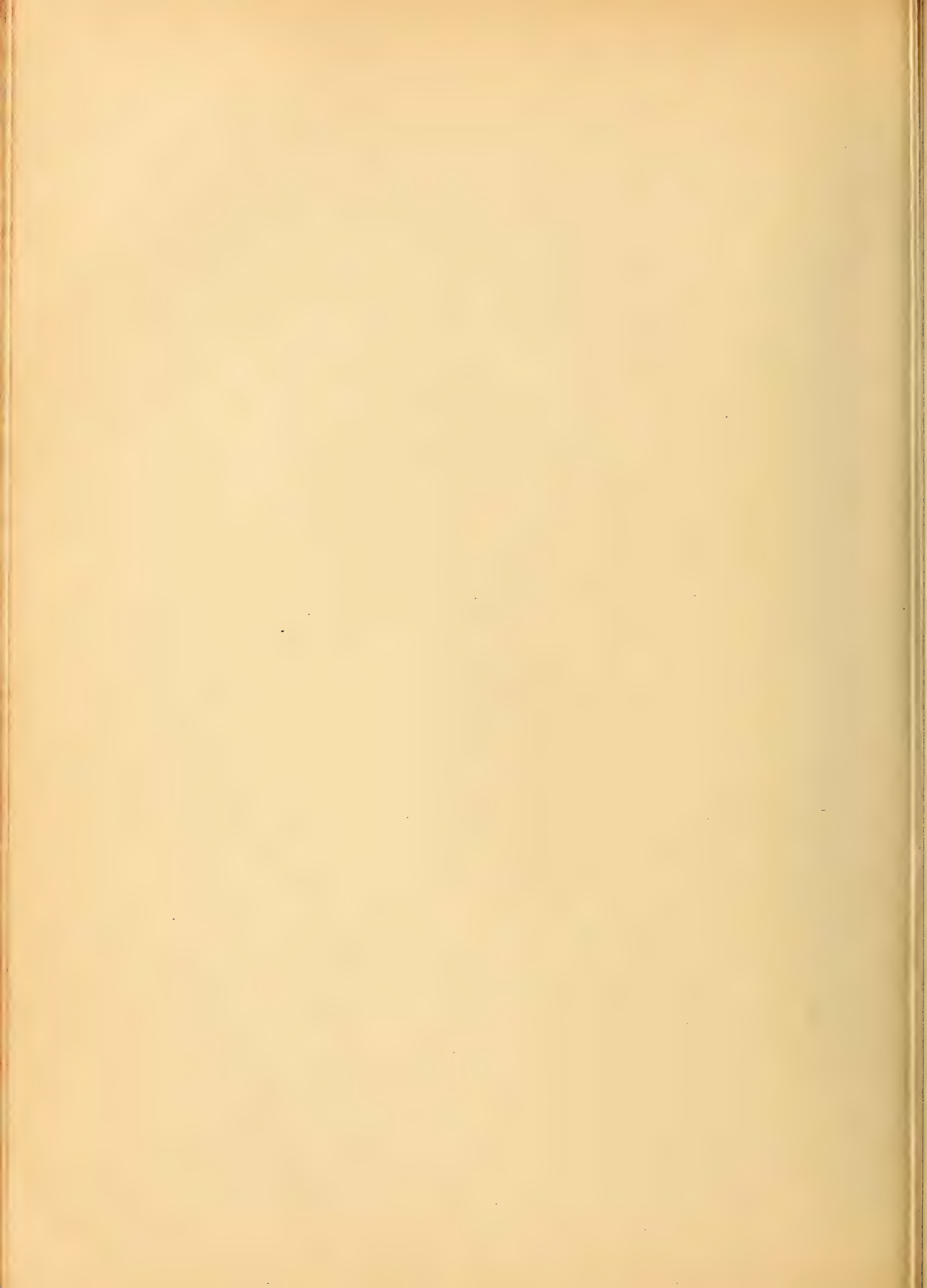
The Least Bittern is a beautiful bird, about twelve and one-half inches in length, and of a retiring disposition, though not adverse to living in a noisy environment, provided it is unmolested in its home among the tall grasses and rushes of marshes. The males possess a small crest which, like the color of the back and tail, is a dark, glossy green. The feathers on the other parts of the body are various shades of chestnut and yellowish brown, certain shades being more pronounced in some individuals than in others. The female is paler in color and the upper parts are richly shaded with chestnut brown. Several authors speak of the Least Bittern as a "silent bird," and although this is a characteristic, I have frequently seen and heard them utter a peculiar "squaak," especially if suddenly approached. It is its habit to lurk in the reedy borders of boggy ponds and marshy lakesides, where the gallinules and rails also abound. An interesting habit of this bird is that of perching on an upright reed where, with its neck extended, it remains motionless for many minutes at a time. While in such a position, the Bittern closely resembles a dead limb and easily escapes observation. While pushing my boat among the rushes during a rainstorm, I have seen the Least Bittern roosting in a clump of vegetation. Here, with its head drawn between its shoulders, it appeared as if endeavoring to avoid a

drenching and was oblivious to its surroundings. At such a time the bird furnishes an opportunity for witnessing an amusing performance. I have gently touched one of the little fellows when in such a position. "Rock, Rock," it seemed to call, and in its sudden efforts to escape, it would lose its equilibrium and fall into the water.

The Least Bittern is a delicate creature and susceptible to cold weather. It is one of the latest of the marsh birds to arrive in the latitude of the Great Lakes. In the states bordering the Gulf of Mexico, it is resident throughout the year, and may rear two broods in a season. The annual appearance of this Bittern is quite variable. In some seasons every available marsh throughout the "Calumet Region," just south of the city of Chicago, contains a colony of these species, while in the following year there may be a marked decrease in the number of these birds. This may be due to an unusually cold spring or to the lack of sufficient water in their natural breeding grounds.

The nest of the Least Bittern is composed of the coarse grass, reeds and rushes, the bird using whichever of these materials that is the nearest at hand. It is usually a mere platform built upon the same kind of vegetation as that with which the nest is constructed. Occasionally the nest is built in a small bush. A sitting Bittern is an interesting study. If disturbed, she will frequently quietly slip from the nest and, crouching in the vegetation near by, will jealously watch her treasures and will seldom take to wing unless approached. The Least Bittern will also occasionally eat or destroy its own eggs. This habit I have only observed when the nest was previously disturbed, or the bird was greatly molested.





The eggs are laid between the last of May and early in July. I have found the usual number of eggs to be four, but sometimes five, and occasionally six. They are of a bluish-white color, ellip-

tical in shape and with a smooth surface. A typical egg measures one and twenty-hundredths inches in length by ninety-three hundredths of an inch in diameter.

GERARD ALAN ABBOTT.

MYSTERIES IN BIRD-WORLD.

Queer incidents in connection with birds, their flights, etc., are sometimes recorded. Birds, whose home is on the wide, limitless sea, occasionally are found far inland, under unaccountable circumstances and conditions.

Again, land birds sometimes drift hundreds of miles out on the ocean. Often, no natural reason can be given for these strange wanderings in the bird world.

Recently two sea gulls were seen in the sand and sage plains of eastern Washington. They were flitting about in a sort of aimless, bewildered manner. The sea-birds were not within 400 miles of the Pacific Ocean, and must have flown over the great Cascade Mountains, one of the loftiest ranges on the continent of North America. How and why they were so far from the sea, is a mystery. It is possible that these gulls were escaped captives, or, that they had been blown far inland by some heavy storm. But neither hypothesis is a very reasonable one after all.

Very recently the Japanese steamship *America Maru* arrived at San Francisco from Japan. Two singular incidents are reported on the voyage to this port:

When 600 miles at sea, this side of Yokohama, the steamer was visited by a large hawk which, clutching a half devoured bird in its talons, alighted on the foremast as if weary in its long, seaward flight.

The second mate climbed up into the rigging and was fortunate enough to capture the handsome bird. Three times he approached the hawk only to see it leave its perch and soar away, still clutching its prey.

Each time, however, the bird returned to its original perch. Before being captured, the hawk made lively battle to the plucky "Jap," vigorously using its sharp, curved beak to advantage in warding off the hands of the second mate. But the latter resolutely clung to the swaying rigging until the prize was secured.

The hawk now occupies a place in the crew's quarters on the steamer. It is quite tame, and appears perfectly satisfied and at home among the men, by whom the bird is highly prized on account of its brilliant plumage and general graceful bearing.

While on the same voyage, another and smaller hawk was captured as the *America Maru* was steaming across the China Sea. The vessel was nearly 300 miles off the coast at the time. The little hawk took refuge in the rigging in an exhausted condition. It was easily secured, and is now a great pet among the Japanese crew.

How it happened that these hawks came to wing their way so remote from the friendly shore, is a mystery of the deep.

J. MAYNE BALTIMORE.

THE GEM OF THE INLAND SEAS.

Sacred with the memory of the great Father Marquette and other early French explorers; interesting as a landmark in the history of three nations—France, England and the United States; the old camping-ground of the Indian tribes of the northwest, but now studded with the beautiful summer homes of the fashionable folk of the south and middle west, Mackinac Island is aptly called "the gem of the inland seas," and "the Newport of the west."

"Michilli Mackinac, the Island of the Giant Fairies," the Indians called it, because of its many natural curiosities. The Indians believed that the giant fairies formed the arch-rock, a natural arch projecting from a precipice on the north-eastern side of the island about one-hundred and fifty miles above the lake. It rests on great masses of fallen rock, leaving a vista of perhaps eighty feet, spanned by an arch of some sixty feet. When one emerges from the road that winds among the beautiful birches or the foot-path along the cliffs above the lake, he is charmed by a sudden view of turquoise sky and sapphire sea, framed by this limestone arch.

Made easily accessible by beautiful drives, are sugar loaf rock, a lone rock on a broad pedestal of natural rock, rising from a basin of cedars; skull and chimney rocks, whose names suggest their likeness; the devil's cave, punch bowl and kitchen; fairy arch, *pointe des cedres*; Pontiac lookout; cave of the woods and lover's leap. Lover's leap bears the Indian legend of the Indian squaw and her lover, who, threatened by cruel parents, sought death together by leaping from this rock into the lake below.

Then there are the beach boulevard, compassing the entire island, and several winding roads through the fragrant cedar woods, and Park avenue, which,

starting from old fort Mackinac, passes arch rock and sugar loaf, around to lover's lane and cupid's pathway. There is also the old British landing road, beginning at the beach, where the English soldiers landed, and following their line of march through the Dominican farm to the old fort. Last but not least, is the steep fort hill, whose climb is laborious, but one is entirely compensated for the effort by the beautiful view of the island and harbor from the fort walls.

Old Fort Mackinac rises picturesquely from the hills, about two hundred feet above the level of the water. The buildings are whitewashed and kept in good condition, although the fort was abandoned as a military post in 1896 and presented to the State of Michigan as a National park. The island was taken by the British in 1780 and remained in their possession until 1793 when it was surrendered to the United States as part of the Northwest territory. In 1812 it was again captured by the British, but returned by the famous treaty of Ghent in the year 1814. Several fierce battles have been fought during the island's history, and many were the bloody encounters of the Chippewa and Ojibway Indians. Strange to say, it was also the rendezvous for the grand councils of peace between the same tribes. Then the calumet or peace-pipe circulated among the chiefs, who exchanged vows of eternal peace, only to be broken again and again.

The old block-house is the most interesting of the fort buildings, and many are the stories told of days, even weeks, spent within its walls, a safe shelter from the ferocity of savage Indian foes. Near the block-house, a large boulder with inscribed plate, marks the spot where an army surgeon of the civil war performed some important surgical operations upon an Indian, who offered himself to the

cause of science. During the war of 1812 a band of Chippewas overpowered the small number then at the fort and a cruel massacre was the result. Now yellow buttercups cover the ground where the early pioneer fell.

The old fort is still in good condition and might again be restored as one of the important, natural fortifications of the country. The view by moonlight of the white buildings and green cedars is beautiful.

The plot of the poem of Hiawatha is founded upon the myths and history of the island. Mr. Henry Schoolcraft, a careful student of the Indians, gave to Mr. Longfellow the material out of which the beautiful Indian epic was compiled.

The Ojibway Indians of the upper Michigan peninsula and Canada have dramatized the poem in the Indian tongue and Indian music and songs. Each year this play is given with a natural stage setting and ampitheatre on the mountain side at Desberats, Ontario. This village bids fair to be the Oberammergau of the west, and is visited annually by thousands of tourists. It is but a twelve hours' trip from the island to the Soo and by rail to Desberats, perhaps three hours. It is a trip well worth the taking.

There are other side trips from the island, and the transportation facilities are excellent. I have mentioned the Desberats trip, but of course one must not miss the United States ship canal, built round the rapids at the Soo, through whose locks more tonnage passes annually than through the Suez canal. Then there are Les Cheneaux Islands, which, in the Canadian French, is elided to something like "the snows." They are a group of pretty, little islands on the south shore of the upper peninsula. The trip can be made in a day. One should not miss the picturesque village of St. Ignace, with its old French church and houses, and the tomb of Pierre Marquette. I visited St. Ignace with friends who secured as a guide one of "the characters" of St. Ignace. We visited the tomb by moonlight. Our guide was a strange combination of the suavity of the Frenchman and the ingenuousness of the

Indian. He procured some cracker-boxes from some unknown quarter and, seated on these, near the tall marble shaft that marks the noble Frenchman's last resting place, we listened to him as he related history and legends. His account was dramatic and at times, funny. One in search of local color should not pass by the island of St. Ignace. And as for mirth-inspiring dialect, a Canuck can meet every requirement.

At the foot of the fort hill is a long, white, rambling house, the John Jacob Astor house. It is the old office of the Astor fur trading company transformed into a summer hotel. In the yard are large lilac-trees, old and gnarled. When they are in bloom the blossoms show all the hues of lavender, violet, mauve and magenta. Such white and purple plumes of lilacs you will never see but at Mackinac Island. They are marvelous in their colorings.

Visitors can examine the queer, old account-books of the company, which was established here in an early day and controlled for years the fur trade of the northwest. It was a branch of this company that later built the town at Prairie du Chien, Wisconsin.

On the highest point of the island there is an observation tower from which a bird's-eye view of the island, the lakes and Michigan shores is obtained.

The main street of the island is a curious place. There are the oriental and Indian booths with their curios, the quaint post-office, the center of interest when "the mail comes in" from the little mail boats, and further along the nets and lines of the fishers on the beach.

The Indian booths are intensely interesting. There are to be found baskets of every size, rich and artistic in color and design, pebbles polished to show every line of their beauty, blankets gay with beautiful dyes, porcupine-quills, and even snake skins fashioned into quaint and pretty things. Here are various articles made of the red cedar and birch-bark.

The docks are another source of interest. The freighters or barges, as they are called here, come down from the Soo, laden with lumber and ore; naphtha launches glide about and little tugs, the

most consequential crafts on the lakes, buzz about the harbors like so many bumble-bees, and the large steamers come into port laden with passengers from the heat-bound cities of the middle west.

A summer's outing has come to be a

necessity. One owes a requisite amount of rest and recreation to one's self, and where can one better breathe new life and gain new vitality from the lake breeze, than at Mackinac Island, the "Gem of the Inland Sea?"

—ILLYRIA TURNER.

THE MOUNTAIN FORGET-ME-NOT.

God's thought is in the mountain ;
He plants His beauty there
In each cool-flowing fountain,
In every blossom fair.

This dainty flower is hidden ;
It loves its lonely lot,
For one will stop sometime and say,
"Lo! God forgets me not."

It gazes on the deep blue sky,
It scans the old sun's face ;
Each lends a glimpse of color and
A touch of Nature's grace.

No skill can paint its beauty's hue ;
No artist can replace
The blossom torn with ruthless hand
From Nature's fond embrace.

"This is my native rock-bound home,
I give you welcome here ;
But bear me not to other climes,
Nor deem these regions drear.

"For here, though snows may gird me round
And dwarf with wintry chill,
The sun shines bright with summer light,
And starts each sparkling rill.

"Then pluck me not from my mountain rock
Beside the streamlet clear.
Revere the beauties Nature placed,
Love me and leave me here."

—ADA M. GRIGGS.



SPECIMENS LOANED BY F. J. ESSIG AND F. W. BARTON.

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MINOR GEMS.

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Chlorastrolite, polished (Isle Royale).
Hematite, polished (England).
Thomsonite, polished (Lake Superior).

Cat's-eye, Quartz, polished (Ceylon).

Variscite, polished (Utah).
Moldavite, cut (Bohemia).
Thomsonite, rough (Lake Superior).

MINOR GEMS.

The stones represented in the accompanying colored plate have, for the most part, but limited use, either because of their local occurrence or their lack of special gem qualities. Three of them are peculiar to the United States, and deserve on that account perhaps to be better known and more widely used by our people. These are variscite, chlorastrolite and thomsonite.

VARISCITE.

Variscite resembles turquoise in many properties, being, like that mineral, a generally opaque, hydrous phosphate of aluminum not occurring in distinct crystals. Its color is, however, normally an apple-green to emerald-green, rather than blue, and its luster is more nearly vitreous than that of turquoise. Its hardness is not equal to that of turquoise, being but 4. Its specific gravity is 2.4. It is infusible before the blowpipe, but becomes white and colors the flame deep bluish-green on heating. The only form of it that has been used to any extent for gem purposes is one recently found in Cedar Valley, Tooele county, Utah. This is of a bright green color and occurs as nodules in a crystalline limestone. Pieces of this have been employed in jewelry in a manner similar to turquoise, though the appearance of the stone is more like that of chrysoprase.

CHLORASTROLITE.

This mineral, the name of which means "green star stone," is solely of American occurrence, and thus far has been found at but a single locality. It occurs at Isle Royale, an island in Lake Superior, in the form of beach pebbles. These pebbles come from the adjoining amygdaloidal trap rock, out of which they weather. They are opaque and of light bluish-green color, with a mottled effect arising from a stellated or radiated structure. This structure, when the stone is polished, affords a chatoyancy, which is very pleasing. It is especially desirable in a good stone that the radiations should emanate from the center, in which case a cat's-eye effect is obtained. The pebbles which

make good stones are mostly small, but some an inch in diameter are known. The hardness of the mineral is 5.5, and its specific gravity 3.18. It is not a homogeneous mineral, but a mixture, composed chiefly of a hydrous aluminum silicate. The stones have not attained extensive use as yet, but are sold in quantities to tourists in the Lake Superior region.

THOMSONITE.

An occurrence of this mineral which is used ornamentally to some extent, is obtained, like chlorastrolite, in the form of waterworn pebbles weathered out of an amygdaloidal trap. The pebbles are found on the shores of Lake Superior, near Grand Marais. They are opaque and of concentric structure in layers of various colors, chiefly olive-green, flesh-red, cream and white. There are often several centers of structure in a single pebble, giving a unique and pleasing effect. The pebbles range up to an inch in diameter and in cutting are simply rounded so as to best bring out the various colors and centers of structure. The hardness of the mineral is 5; specific gravity 2.2-2.4. Its luster is vitreous to pearly. In composition it is a hydrous silicate of aluminum, sodium and calcium, and its occurrence is almost wholly as a secondary mineral filling the cavities of igneous rocks.

While the mineral as sold at Grand Marais has long been known as thomsonite, it is declared by some mineralogists to be in reality the allied mineral mesolite.

MOLDAVITE.

This term is applied to a transparent green stone found occurring in small pieces in Bohemia in the region drained by the river Moldau, whence the name Moldavite. The color of the stone is of the peculiar character generally designated as bottle green, and since its physical characters, such as hardness, fracture, optical qualities, etc., also resemble those of glass, the view was long held that the fragments found were remains from some

long since demolished glass works. Later, however, a Viennese geologist, has advanced the opinion that the fragments are of extra-terrestrial origin and represent a peculiar kind of meteorite. Proof of such an origin of moldavite would lend an added interest to it and probably increase its use for jewelry, the present employment of it being rather limited. The pieces as found are water-worn pebbles of various shapes, usually with deeply indented or pitted surfaces. In size they are never larger than one's fist, and usually much smaller. They are found in the beds of brooks and in the soil. Regions near Budweis and Trebitsch are especially prolific in the pebbles. Moldavite has a hardness not quite equal to that of feldspar, being a little less than 6. It is thus somewhat harder than ordinary glass. Its specific gravity ranges from 2.32 to 2.36. Unlike ordinary glass and obsidian, it is almost infusible before the blowpipe and when fused remains perfectly clear on cooling. It differs considerably in chemical composition from ordinary glass, having, as it does a higher percentage of silica and alumina, and a smaller percentage of alkalis. The percentages of silica range between 88 per cent and 78 per cent, those of alumina between 5 per cent and 13 per cent, and those of potash and soda between 1 per cent and 2.5 per cent. In ordinary glass the percentage of silica is not much above 50 per cent; there is almost no alumina, while lime and magnesia amount to about 20 per cent and potash and soda to 20-25 per cent.

Glassy pebbles similar to moldavite are found also on the island of Billiton near Java. These are known as Billitonite. They are also found in Borneo and several parts of Australia. In these places they are believed to be of volcanic origin if not meteoric.

Of these different occurrences only the Bohemian is so far used to any extent in jewelry. Owing to the abundance of the material the stones cut from it are not expensive, being valued at no more than quartz or agate. Actual glass can easily be substituted for it with little chance of detection.

HEMATITE.

Hematite is an oxide of iron which takes on a variety of forms and shades, but is used in jewelry only when compact and of an iron-black color. In this form it is used especially for intaglios, but also for carving into ornaments of various sorts. Its hardness is 6 and specific gravity 4.9-5.3. Its composition is, iron 70 per cent and oxygen 30 per cent. While in a mass it is invariably opaque and often black in color, but in a thin splinter it may be seen to be slightly translucent and red. This red color always characterizes the powder or streak of the mineral, and is one of the surest means of identifying it. As the color resembles that of blood, the Greeks believed the mineral to be concremented blood and the name hematite is from their word for that substance. Under the name of blood-stone it was long believed to be a curative of hemorrhage, and Robert Boyle, the eminent physicist, writing as late as 1672, gravely relates a cure of a case of nasal hemorrhage of long standing through wearing a blood stone about the size of a hen's egg about the neck.

Powdered hematite forms the rouge of commerce used so extensively for polishing.

Hematite was used in the carved form by the ancients as well as the moderns, a number of gems so prepared having been found in the ruins of Babylon. Large polished surfaces of hematite make excellent mirrors and frequent use was made of it for this purpose in earlier times. Hematite is so abundant over the earth's surface that it has little intrinsic value except as an ore of iron. That used in jewelry comes largely from northern Spain. Hematite of a similar character is obtained in the Island of Elba, Cumberland, England, and the Lake Superior region of our own country. Besides its use for seals it is employed to make imitation black pearls. Certain fibrous occurrences of hematite when cut in rounded forms give the star-like appearance exhibited by star sapphires.

OLIVER CUMMINGS FARRINGTON.

COLORLESS FLOWERS.

Now is the high-tide of the year—
Every clod feels a stir of might,
An instinct within it that reaches and towers,
And, groping blindly above it for light,
Climbs to a soul in grass and flowers.

—LOWELL.

Few of the people who like to watch the wind rippling over the summer meadows know what surprises await them in the colorless grass flowers which are often more interesting than their bright neighbors.

Pick one of the feathery tops of the spear grass (*Poa pratensis*) and note how the branching bouquet is arranged in little clusters of flowerets. These can easily be seen with the naked eye for millions of them open wide every dewy morning, and disclose three delicate stamens poised on gossamer thread like filaments. The two feathery stigmas in the heart of the grass blossom remind us of a pair of beautiful little dust brushes. In fact, it is their mission to catch the pollen from the passing breeze and in a few days you will find each wheat like grain has grown plump in the pollen laden wind, for the wind and the water are the grasses' couriers. But sometimes the breeze brings an enemy, thousands of spores from a minute fungus, which makes the rusty places on the wheat and the great smutty spots on the ears of corn.

The grass flowers are colorless, odorless and make no nectar for they do not care to attract insects, they even protect themselves against their visitation by sharp barbed points. Butterflies are sometimes seen hovering near for they like to sip the sweet juices of a few of our grasses.

In a popular sense, the order forgets the true representatives, corn, sugarcane, rice and wheat, and includes the beautiful sedges, which fringe our brook-sides. It is well to get acquainted with a family of plants that feeds half the hu-

man race, and has not a poisonous member except the darnel, the historic tare of the Bible.

We learn from fossil grasses, mere fragments of seeds and leaves preserved in peat that this family was widespread in the Tertiary period. The earliest mention of grass is made by an ancient Hindoo poet, who sings of the grass blades' wind blown seeds, "as large as earth, as rich as heaven." The beasts and the birds help in the distribution of the seeds, but the wind plays an important part. In the beard grass the flowerets are plumed and when dry they are scattered by the breeze and the seeds are pointed so that they can easily work their way into sandy soil.

There are many vagrants among the grasses brought to us through commercial intercourse and colonization. In the United States we have many climates and kinds of soil and more grasses adapted to the different parts of our great country will yet be introduced into agriculture. In Holland the very existence of the land depends on the foothold of the grasses.

There is no grass sowing recorded up to the time of the Pilgrims' landing. When the British soldiers returned to England, after the Revolutionary war, they told how the colonists raised timothy from seed. Now we find much beauty in well kept fields and lawns, and call no landscape perfect without the pleasant green. Ruskin says: "Think of it well whether of all the flowers that bloom there be any by man so deeply loved, by God so highly graced as that narrow point of green."

W. C. KNOWLES.

THE MUSHROOMS.

Many years ago Wilck and Münchhausen gravely wrote that the Mushroom belonged to the animal kingdom. Later on they revised their opinions to the extent of referring all fungus growths to the mineral kingdom. Doubtless, had their lives been spared, good and sufficient reasons would have been evolved to remove the Mushrooms altogether from bodies terrestrial, placing them among the bodies celestial. Mushrooms, however, have for centuries been more or less of an enigma. They were popular among the ancient Greeks and Romans as an article of food, but ever since the men of the agora and the forum feasted with much uncertainty of consequences on the "Pixi stools," no fixed rules have been established by which the unscientific collector may be protected from the deadly forms. Wilck and Münchhausen referred the fungi to the animal kingdom because "when fragments of them or their seeds were placed in water animalcules were discharged which are capable of being changed into the same substance." It was thought that polypes inhabited the cavities and reproduced after the manner of corals.

Mushrooms are plants. They occupy a unique position, however, in the vegetable kingdom. It might be said of these "children of earth" that they toil not, neither do they spin, inasmuch as they take no part in the busy life of the plant world. Not possessing chlorophyll, or the green coloring matter which is the chief characteristic of the vegetable kingdom, they are incapable of converting inorganic into organic matter. Hence they must depend for their sustenance on the efforts of other plants. They develop no flowers or seeds, but reproduce by means of spores, which germinate if the peculiar conditions essential to their growth are present.

The spores first assume the forms of threads, forming a network known as the mycelium. These in process of time develop small, round bodies which increase in size until either a stem is formed, lifting the globular body above the surface of the ground, or else, as in the case of the puff ball, the spherical mass appears without stems.

When once developed, the plants assume a multitude of forms, often displaying a mimicry of other objects that is at once astonishing and amusing. Cups, umbrellas, shells, clubs, horns, faces even, are among the effects produced, while the study of conic sections is amply illustrated among the spheres, hemispheres and cones of the fungoid growths.

While exceedingly beautiful in form and color and in many instances wholesome, it is well for the uninitiated to class all Mushrooms with the many brilliant berries that are found in the woods. Some are edible, others deadly in their effects. The old, familiar advice given as a rule for distinguishing the good from the bad is conclusive but heroic. First eat the toadstool. If death ensues, it is safe to conclude that the species is deleterious, not to say deadly, in its effects. On the other hand, if no fatal consequences result, the particular form may be added to the bill of fare. Many people believe the silver and onion tests to be infallible. Such, however, is not the case. While it is true that poisonous Mushrooms will discolor silver, brass or onions, it is also true that harmless forms will produce similar results by reason of sulphureted hydrogen which is liberated when albuminoids decompose. Furthermore, the odor test is not reliable. While edible Mushrooms have an odor of fresh meal and the flavor of hazel nuts, several of the poisonous



Amanitas have similar characteristics. As a rule, it is well to collect Mushrooms for eating by the proxy of some botanist who is familiar with the various forms, for if by chance the poison Amanita, or death cup, enters into the feast, fatal results are almost sure to ensue.

The poisonous principle is known as phallin. It is a tox-albumin similar to the poison of the rattlesnake and is said to be the cause of death in cholera and diphtheria. It liberates the serum of the blood by dissolving the blood corpuscles, thus removing all vitality from the system.

It is not to be wondered at that the Mushroom has been an object of interest and admiration for many centuries. The brilliant reds, greens and violets that adorn the trees, the pastures, or the dark, damp spots in the woods; the fanciful and bizarre shapes and the value attached to many forms as an article of food, have caused the plants to be sought after and widely studied. In the microscopic forms no other members of the vegetable kingdom play so great a part for good or evil as do the fungi. In fact, they are intimately connected with the welfare of the human race. As ferments in yeast, wines and beer they are indispensable, but when operating as mildews, rust and smuts on vegetation or as dry rot in lumber, their services could cheerfully be dispensed with.

Our illustration shows an edible form of Mushroom whose beautiful colors contradict a prevailing idea that the highly colored forms are poisonous. The plant is known as the greenish *Russula* (*Russula virescens*). It can hardly be called green; greenish-gray better describes it. The top is dry and has upon it small warts or patches of the characteristic color. It is at first rounded, then flat, and later may become centrally depressed. It is usually thin and smooth at the edge, marked there with short lines following the direction of the gills. Old

specimens will occasionally split at intervals along the edge. The gills are white or nearly so, and are very fragile, being shattered by a slight blow. They are narrow near the stem, hardly reaching it. The flesh is firm and of a creamy white, the spores being white. The stem is thick, solid and rather short.

It is not surprising that forms exhibiting such a variety of color and form and mystery of development should have become a subject for myth and story. It was thought that the red forms growing on the trees were Dryad's tongues put forth to obtain moisture. The puff balls were called Devil's snuff boxes, and the toadstools received their name from the fact that toads were supposed to sit on them. Another form of this name is pixy stool. Pixy is the feminine or diminutive of Puck, the king of the fairies. In Friesland Puck is known as Pogge, and in Ireland as Pook, both meaning toad. Hence the toadstool comes honestly by its name from the pixy or Puck stool.

The puff ball is also known as the Puck or Pouk ball, and as Puck was considered to be a devil, the devil's snuff box came as a matter of course.

Mushrooms are also responsible for the fairy rings so often noticed in pastures. They were thought to be formed by the dancing feet of the Oreades, but science comes along and replaces the fancy by cold facts.

A Mushroom soon exhausts from the soil the food necessary for its growth. Hence its spores must fall beyond this depleted area in order to germinate, and by so doing a ring of the toadstools is formed. When they decay the ground becomes fertilized, causing the grass to spring up along the line of the ring with greater luxuriance than elsewhere. But after all, if the path was not made by fairy feet, the presence of the toadstools proves that Puck has been there, and whether toad or devil, he has helped to make the grass grow.

CHARLES S. RADDIN.

TWO LITTLE MONKEYS.

On a sultry summer day I saw a poor little Monkey with a man who was playing an organ. Although the heat was intense, that poor little Monkey was dressed in a thick, red coat and he dragged a heavy chain. He did a number of funny little tricks. He was turning head over heels and dancing. When anyone gave him a coin, he raised his little hat and made a graceful bow and also offered his little paw to shake hands with.

A man who was standing by took a coin from his waistcoat pocket, which he gave to another man, to give to the Monkey. Mr. Monk must have seen the whole proceedings, for, instead of bowing to the last man, he turned to the one who actually gave away the coin and offered him his little paw, but the man kept retreating from him, keeping his hands in his pocket. When the Monkey saw that he really didn't mean to shake hands with him, he just ran up him and sat on his shoulder. Then he took off the man's hat which he placed on his own little head, completely extinguishing himself; he took it off again and holding it out in his paw, he made a most graceful bow. He then replaced it on the man's head and got down again. Fancy a poor little Monkey giving a lesson in politeness! I do hope that, when he reached his home he had a very good supper after his hard day's toil.

When I was a little girl my Sunday-school teacher, Miss Tucker, who wrote many stories for boys and girls, told me a true story of a Monkey. When she was a little girl she lived in India. Their bungalow stood near a jungle. Her aunt in England bought a fine doll which she dressed beautifully and when opportunity offered she sent the doll to her little niece. Little girls in America do not know the treasure that a European doll was to a child in India. That morning she had been to school. The school began at six o'clock. The session was

only for one hour for small children. The heat in India is so great during the summer, that between sunrise and sundown nothing is done by Europeans that can possibly be avoided.

When the little girl reached home her father presented her with the lovely doll. Her delight knew no bounds. She went outside the bungalow to sit with her nurse in the open air before it became too hot to go out. She sat down and took off all her doll's clothes, showing her nurse how every garment was made so that it could be taken off and put on. Her nurse, who was a kind, intelligent woman, admired everything; then the child redressed dolly and laid her by her side on the grass, while her nurse began to read her a story. At that moment a little Monkey (who must have been watching her every movement) darted out of the jungle so suddenly that he had snatched the doll before the child could realize her loss. When she saw that the doll was actually gone, her grief was intense. Her nurse tried to soothe her, but unavailingly. Then a funny thing happened. There was a great chattering of Monkeys, and the nurse and child looked and saw that the Monkey had come back to the edge of the jungle, still carrying the doll. He was seated in the center of five or six other Monkeys who were all talking at once, probably giving their opinion about it. Presently the possessor of the doll commenced taking off the doll's clothing, just as the little girl had done. When he had satisfied himself about everything, he started to redress it. Another Monkey seized the doll's hat which he placed on his own head, putting the elastic under his chin. The other Monkeys, seeing this, also snatched up little garments with which they ran, chattering away, further into the jungle, the Monkey with the naked dolly following in pursuit.

The whole incident was so funny, that,

in spite of her great loss, the child had to laugh. When she told her father about it, he comforted her as well as he could by saying that he would write to her aunt, explaining the facts about her loss and requesting her to buy another doll and send it out to the little girl. One could not buy such a doll in India at that time, even if one had unlimited money. Many weary months elapsed in which the child daily thought of her lovely dolly being nursed by a lot of

Monkeys. It was seen by different people several times afterwards, and it was always in a Monkey's arms, appearing more battered looking every time. At length, on one ever memorial day, a box was left at the station for little Miss Tucker, which contained a doll even more splendid than the last one.

She assured me that she never by any chance ever laid that doll down out of doors, even for one moment, for she feared the Monkeys.

PHOEBE A. NAYLOR.

DREAM-GATHERING.

I have been gathering dreams today
Over wood and fallow,
From the marsh-land's gold and the sky-land's gray
From aster and mallow.

One from the trumpet-bloom was blown
Like a drift of glory.
One fell sweet from the mock-bird's tone,
Of love 'twas a story.

One in the windrowed bay hid warm.
Mid murmurs of reaping,
Came one from the startled storm
Up the cold west creeping.

Nestled within my heart they lie
Like swallows awaiting
Call to a zephyrous soft sky
After summer mating.

—CALE YOUNG RICE.

A BEES' GARDEN.

The bee loves the blue flowers, though blue in this case includes the bluish-purple that is so frequently found among the flowers of spring. He likes also flowers of other colors, but there is a certain shape that is beyond doubt his favorite, for it comes by a gradual adaptation to the bee's needs. Oddly enough, it is called "butterfly-shaped" (papilionaceous) because it looks so like the winged butterfly just about to take flight. The broad upper petal is to attract the bee; the two curved petals that are welded together hold the pollen and nectar and the two opening petals at the side are to support the bee's weight comfortably. As he presses upon the bloom he is just heavy enough to cause the treasure-box to open, and when he flies off, it closes again. Such blossoms belong to the pea family. They are airy, swinging, graceful blossoms that look all alive and alert.

One of the earliest of the blue or purple vetches—another name for many of the pea family, is the pretty little strangletare, a small blossom that blooms in the first spring days. It is so called because of the single tendril coiled at the ends of the leaves, like a fairy lasso. It is a pinkish purple, and looks like a wild sweet pea that has fallen in the grass. The blue vetch, a larger flower, shows like the lupine, the summer heaven's own color, and glorifies the rough fields and sides of ditches with its profuse blossoming. It too has a folk-name of evil meaning—the Devil's shoe-strings, and no one who has ever noticed the pair of tangled, knotted tendrils at its ends could fail to see what wicked words and evil tempers would be roused by such strings! The goats' rue or hoary pea is a shrubby plant with creamy standard and keel and rose-purple wings, wearing a bluish tint as they fade. The stem is covered with fine white silvery hairs that give the air of hoariness to the plant. The Amphi-

carpaea is a beautiful vine, blooming in late summer with rich violet-purple clusters climbing on the tall golden compositae along the banks of streams or shadowy lanes. Low down near the roots bloom unnoticed certain plain little blossoms that bear abundant seed. These blind or unopened flowers look like arrested buds, and are known by a Latin name that means a secret marriage. The violets in the same way bear hidden blossoms among their roots to secure seed if the fragrant blossoms fail, and so the hidden flowers of the *Amphicarpaea*—which means "seed at both ends"—stand ready if the royally splendid flowers of the top that wave their signals in the upper sunshine, should by any chance be without seed. I have spoken of the standard of the pea blossom as a signal flag for the wandering bees. The flowers that show this use of the upper petal most strikingly are those of the lovely blue butterfly pea with their large standards, and also those of the curious *Amopha* that has but this one petal for calling the rover to its feast!

The bee's flowers of the midsummer or autumn are of rich gold instead of blue. The wild indigo is well known, for it fills our woods with its multitude of trefoil leaves, and small yellow butterfly blossoms in a swarm at the ends of its branches. The three cassias—the sensitive pea, the partridge pea, and wild senna—are not loved by the honey-bees; but the vagrant bumble-bees seek them, and stroke the dark anthers with their mandibles to secure the pollen. The leaflets are sensitive, and droop in sleep under the chill of the night air, or fold together when handled or jarred, hanging listless until undisturbed. "Plants move and act less conspicuously, but not less really than animals. Sharing the mysterious gifts of life, they share also its powers." ELLA F. MOSBY.





THE FLY MUSHROOM OR FLY AMANITA.

(*Amanita muscaria*.)

During the past few years there has been a growing interest in the study of Mycology. Among those interested in this subject are many who have no time, perhaps no inclination, to study it scientifically. They would like to be able to distinguish one mushroom from another as they distinguish one flower from another. They have no difficulty in deciding between a rose and a lily, although they may know nothing of the structure and classification of either. To become acquainted with many of our common mushrooms in this way is by no means difficult. There are fortunately only a few dangerous ones, but with these, if one wishes to gather mushrooms for food, it is important to become thoroughly acquainted.

The Fly Mushroom is one of the most dangerous. It grows very abundantly in July, August and early September. It is attractive in appearance and gorgeous in coloring, but its fair exterior is a snare and a delusion. To it and its blood relatives may probably be attributed most if not all of the deaths from mushroom poisoning. It is commonly conceded that its family is the only one which is fatally poisonous, although there are others which produce unpleasant illness. This particular member of the family is mentioned because it is very common.

In examining this Mushroom one should not pull it; dig it up carefully and be sure to lift all of it. When matured it will weigh perhaps half a pound. It is usually of an orange yellow, fading to a pale color at the edge. Sometimes it may be pale yellow, again almost white. You will notice a number of

raised, irregular whitish or yellowish spots or patches on the surface at the top. These are characteristic. The top is nearly flat in mature specimens, and sometimes measures eight or ten inches in diameter. If the baby growth is examined it will be noticed that it is almost globular. The gills are white and very regular, and are sometimes slightly tinged with yellow. On the stem there is a sort of ring or collar which is whitish or yellowish in color and of a thin texture. The lower part of the hollow or stuffed stem swells out and is distinctly bulbous at the bottom and about the base there is a sort of cup or socket from which the stem rises. Above it, the stem is clothed with whitish or yellowish fragments of like texture to the ring. Sometimes these fragments are almost wooly and extend upwards for some distance.

The flesh of this Mushroom is white, firm and very inviting. The gills are rounded at the edge and at the stem. The odor is pleasant and the spores are snowy white. Altogether there is nothing to warn the rash experimenter that it is not as good as it looks. You will find these decorative Mushrooms in fields as well as in woods; long ranks of them file away through the thin grass. Also one may see them standing in all their glowing color in evergreen woods, the fatal poison cup hidden by the deep green moss.

Do not understand that no species resembling the Fly Mushroom is edible. This wicked family is not wholly depraved, but it is best for a novice to confine himself to a bowing acquaintance.

ELIZABETH WILLIS WOODWORTH.

A CURIOUS BIRD.

The Museum of Natural History, New York city, has recently added to its many remarkable exhibits a very fine specimen of the long-tailed fowls peculiar to Japan. This beautiful and unique creature is now being mounted preparatory to its appearance in "Bird Hall," where, as the only one of its kind in this country, it cannot fail to prove a most interesting object. This particular bird was grown especially for the Museum under the personal supervision of Professor Bashford, Dean of Columbia University, who visited Japan a year or so ago.

The introduction of this breed into Japan is said to have been brought about

by a Prince of that country, whose imperial crest was a feather. Every year, so the story goes, he offered a prize to the subject who would bring him the longest feather.

The breeders all exerted their skill to produce the greatest length of tail feathers possible, and from all accounts the results they obtained were quite remarkable.

Few authentic details of their methods can be gathered, but it is certain that artificial means were not used, selection apparently being alone resorted to. The breed, which is now about a hundred years old, is rapidly dying out, and must soon become extinct.

LOUISE JAMISON.

THE SEPTEMBER RAIN-STORM.

The windy weather brings the driving rain,
Dripping heavily over sheltering eaves
Or battering 'gainst the roof and window-pane,
Knocking like a host of threatening thieves.
Below the drops are dancing on the walk
While the rushing rivulets in haste
Toss roaring torrents o'er the road, then fork—
Speeding to the sleeping meadow waste.
At last the chasing clouds are blown away—
Robins race upon the new-swept lawn—
While through the rift above a golden ray
Sheds the glory of a sunset-dawn.
Then o'er the silent pond the swallows whirl
While evening skies their sable shrouds unfurl.

—FREDERIC FORTUNE.

The beautiful is as useful as the useful.—*Victor Hugo.*

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NATURE.

The bubbling brook doth leap when I come by,
Because my feet find measure with its call;
The birds know when the friend they love is nigh,
For I am known to them, both great and small.
The flower that on the lonely hillside grows
Expects me there when spring its bloom has given;
And many a tree and bush my wanderings knows,
And e'en the clouds and silent stars of heaven;
For he who with his Maker walks aright
Shall be their lord as Adam was before;
His ear shall catch each sound with new delight,
Each object wear the dress that then it wore;
And he, as when erect in soul he stood,
Hear from his Father's lips that all is good.

—JONES VERY.

THE TENNESSEE WARBLER.

(*Helminthophila peregrina*.)

And all about, the hills are crowned
With woods that seem to burn and glow,
And purple asters, from the ground,
Look up and watch the armies go;
Long, swaying ranks of swallows strong,
And bobolinks, alert and gay,
And warblers, full of life and song—
All moving swiftly on their way.

—FRANK H. SWEET, "Flocking of the Birds."

During the spring and fall migrations, the Tennessee Warbler is a common bird in many localities of the eastern United States. Its breeding range extends from Minnesota, New York and northern New England northward to the latitude of Hudson Bay, and it winters in Mexico and Central America.

This "nymph of the woodland" is a very active bird and extremely dexterous in catching insects which it seeks in the foliage of trees, both of the forest and the orchard. It seems to be especially fond of the willow trees and shrubs that grow on the banks of water courses, where there is an abundance of insect life, and it is not an uncommon visitor in the denser foliage of tamarack swamps. While it prefers the borders of an open forest, it not infrequently visits, during its fall migration, corn fields and vineyards and may even be seen in large gardens.

Constantly alert, the Tennessee Warbler flutters through the outer foliage of trees where, with its sharp and slender bill, which is admirably adapted for the purpose, it picks innumerable small insects from the leaves and twigs. Like a titmouse, it will frequently swing from the underside of a twig or even a leaf in its pursuit of an insect. Though it destroys a large number of the smaller insects, it seems also to have another use for its sharp bill which has brought upon it the enmity of the grower of small

fruits. It has been shown by several observers that in the fall it will puncture ripe grapes in order to obtain the sweet juice. Because of this habit it has been called Grape-sucker, and in some vineyards the injury produced by the pretty little green Warbler has been quite serious. Mr. Amos W. Butler says, in his "Birds of Indiana": "It sometimes eats the fruit of the poison ivy and becomes a distributor of its seeds." From the examination of stomachs of several of these Warblers, it is evident that the amount of damage that is done by the puncturing of grapes and the distribution of noxious seeds is greatly overbalanced by the large number of insects, many of which are harmful to vegetation, which they destroy.

The Tennessee Warbler quite closely resembles both the Nashville and the orange-crowned warblers when young. Mr. Chapman gives the following method of distinguishing the young of the three species: "The Nashville is distinctly yellow on the breast and under tail-coverts; the orange-crowned is pale greenish yellow, with dusky streaks and yellow under tail-coverts; the Tennessee is pale greenish yellow, without streaks and with the under tail-coverts white." The adults are easily distinguished.

Its song is not easily described. By many the song has been likened to that of the Nashville warbler, but Mr. Bradford Torrey says that the two are so de-



cidedly different as never for a moment to be confounded, though the former is suggestive of the latter. The Tennessee's song is certainly much shriller than that of the Nashville Warbler. Mr. Ernest Thompson has described its song as beginning "with a note like chipiti, chipiti,

repeated a dozen or more times with increasing rapidity, then suddenly changed to a mere twitter."

The Tennessee Warbler nests in low bushes or upon the ground, building its home with fine fibers and grasses interwoven with mosses and lined with hair.

AN AUTUMN WILD GOOSE FLIGHT.

The air is cloudy and chilly and dull
With the shivering strains of an autumn sky;
The great brown earth lies in withering lull,
With its heart-beats resting.—They do not die.

The plowman, rapt in his labors of steel,
Looks up and seems to feel and to hear
A sigh of Nature—perhaps an appeal
To love her still, though her sleep-time is near.

He sweeps the gray with his wandering glance,
That the heralds of sleep he may not miss;
And he hears the grim and louder advance
Of the unseen hosts in the cloud abyss.

On his ear in a measured sweet-harsh song
Falls the "honk, honk, honk" of familiar strains;
This his vision discerns the V-shaped throng
That is sweeping from Northland lakes and plains.

"O birds of Nature!" he cries in his heart,
"Fly on where the summer is evermore;
Fly on while we wait, in our bare-learned art,
For thy minstrelsy of the spring once more."

And the wild geese fly with their measured song
Toward the sun-bright lands of a constant spring;
Some glory of Nature is carried along
By even her humblest creatures a-wing.

—WILLIS EDWIN HURD.

AN HOUR AFIELD.

Bird lovers and bird students are said to be endowed with certain fancies. One of our most charming writers on bird topics says, "It is a sign of success when starting on an investigation of bird life to meet with some bird at the very start." So I thought one morning as, with note book and field glass, I opened the door to take a stroll through fields and woods that it was to be a successful walk, for I had my hand yet on the door handle—no, it was not a door knob, but an old-time cast iron door handle such as farmers used to have on their doors fifty years ago—when I saw a jay alight on the corn crib, the thief. But for all his thievish ways and unmannerly conduct I like the bird, and he would be greatly missed for his striking colors and audacious ways. With the most of birds one can form some sort of an idea as to what their next move will be, but the only move probable with the jay is that of something unexpected. Of course the English sparrows were very much in evidence, for they always are. I had not yet reached the woods, but thirty rods away, before numerous juncos rose from among the weed stalks and sought the greater seclusion of the evergreens, while from a tree bordering the wood a tree sparrow was singing its morning song. Deeper in the wood a red-bellied woodpecker was uttering its shrill call in a regular monotony. This is the shrillest, harshest cry of any of our woodpeckers. I knew where I would find him, down by the wood road in a dead hickory, his head out of the doorway. Sure enough, there he was, announcing to all comers that he was at home, and if any one wished to see him they knew where to find him. The pleasing notes of the kinglets were to be heard from the tops of the elm trees, where these little sprites were busy examining each twig and branch while their song seemed far away, I had learned

that when it was heard at all the singer was not far away. I wanted a clear view of the little bird that I might determine to a certainty its identity. They are so diminutive and restless, and keep so in the tree tops, that it is hard to get a certain view to distinguish color and markings. Seen in the shade they look a little grayish brown bird, but seen in the sunlight they shimmer and glow in a dress of greenish, yellowish gray, burnished and bright as armor. After a long time one so turned his head that the ruby in its crown came into distinct view and there was no longer any doubt as to the bird's identity. Only a few rods farther on another of them posed on a low shrub but a few feet away and regaled my ears with its song and ruffled and preened its feathers and flaunted its ruby crown before me, as much as to say, "Well, you have found us out, so now we have nothing farther to conceal from you." This was an incident, corroborating a theory I had before held, that when searching for a distinguishing mark of a bird through difficulties, after I had found them to a certainty, there was thereafter no difficulty in meeting opportunities to corroborate them. The various blackbirds were clucking and k-wa-ker-ee-ing through all the variations of blackbird song in the tops of the oaks, while way off in the wood the nuthatch was sending forth its challenge, but was steadily coming nearer, and soon alighted on a nearby ash tree and peered down at me in its mouse-like attitude; while the chickadees, in their usual fearless manner, were flitting about entirely undisturbed by that monster man who, with leveled glass, was watching them. A phoebe sat silent on a dead branch, only making occasional dashes out into space, then returning to its perch. A hairy woodpecker was flitting hither and yon from tree to tree in its restlessness, and a yellow-bellied

sapsucker was industriously employed in drilling wells in the body of a maple, where he could later slake his ever present thirst. From off across the meadows came the voice of a meadow lark announcing it "spring o' the year," and the red-breast called "cheer up," as though I did not know, though the wind was north and chill, and a white frost lay thick on grass and plowed field, it was time for spring, and that soon bright sunshine and warm showers would clothe these naked fields and woods in summer garb. Overhead like shadows the crows were wending their way to their feeding ground in the low-lying lands and calling to each other as they passed.

A red-tailed hawk with broad expanse of wing, without an apparent quiver of pinion, sailed slowly above, while its head turned in watchfulness from side to side. It soon settled on the topmost

bough of a towering oak and surveyed all beneath, and finding no suspicious signs it took its place on its bulky nest in the forks of an oak, but with neck upstretched and restless turn of its head it continued to scrutinize all surrounding objects, while its mate described great circles overhead, ever drawing nearer, till satisfied that all was safe at home, it took its flight and soon was lost to sight. From out the thick branches of a prostrate tree a hermit thrush silently flitted away to a safe distance and alighted on a low branch, silent and motionless till again disturbed, when like a shadow, flying low, it disappeared amid the bushes. At the edge of the wood the fox sparrows were flitting about or were busy scratching among the dead leaves. Truly there was bird life manifest that morning, and the omen at the beginning of this half-mile stroll was happily verified.

L. O. MOSHER.

PAINTED INDIGO-BIRD.

When airs are pulsing 'mid summer's heat,
And cattle have sought some cool retreat;
When farmer-man lies beneath the shade
And silence rests o'er hill and glade;
Then out from the tip of the tallest tree
A song bursts forth, in wildest glee.
He sings of the sun, of life begun,
And how he is glad his nest is done;
He weaves from the heat
This melody sweet
And sings it till none his song can beat.
Dark blue-bird, on the dark, tall tree,
Singing for you and singing for me,
Singing a musical fantasy!
Oh, friends of mine, have you never heard
The rapturous songs of the Indigo-bird?

MRS. A. E. GOETTING.

OCTOBER WILD FLOWERS.

These are the days when the birds come back
A very few, a bird or two,
And take a backward look.

—Emily Dickinson.

October the golden month is here. Nature makes a last supreme effort at being gay and succeeds, for never were the fields and woods and marshes so bright with color as now.

October holds to the last part of the year the same relation that June does to the first. Both produce perfect days, alike yet different. In both a sort of golden haze permeates the air, and both may well be called flower-months. June's flowers are painted with a light touch, but in October Nature lays the colors on strongly. Both are noted for their breezes, June for its gentle perfumed zephyrs, October for its easy, sportive winds, redolent with woodland odors.

The waters of the brooks and rills have lost their warmth and their touch fore-shadows December; but if their waters are cold, not so their banks. Stunted willows with dark green leaves shade them and here and there a maple in its autumn garb reflects its scarlet in the water.

Near the water's edge grow sunflowers and burr marigolds, both bright yellow. But the ideal autumn garden is found along some shady country road, for there bloom our most conspicuous autumn flowers. Our national flower, the goldenrod, is represented by several species. The lance-leaved variety would never be taken for one of the family as most of our species flower on long, slender stems. The scented goldenrod is found beneath trees with interlaced boughs, high and dry. Its faint odor, like caraway seed, delights the sense of smell, as its flowers do that of sight.

Asters are found here and there on the roads, but their true home is in shady, slightly damp woods where they bloom by the thousand. Their purple and blue contribute not a little to the gorgeous whole of October.

In places where the earth is rich with the leaf-mold of many winters, the snake-root and ironweed bloom.

Many other flowers blossom now, but these are mostly inconspicuous. To this group belong the beggar's-lice and ticks. They are truly modest and as 'umble as Uriah Heep himself. We would never suspect their presence were it not for the fact that they have grown very close to us—in a literal sense. For during our ramble, they have covered our clothes and we must needs sit down and pick them off. Then their purpose is achieved for we have disseminated their seeds in all directions.

The hog peanut, which is much more elegant than its name, frequents low places and clambers over strong weeds which are likely to give it support. The wild bean haunts the same localities as the hog peanut.

Last but not least, comes the fringed gentian which is found in marshy spots.

Bryant is somewhat wrong when he declares of it—

Thou waitest late and comest alone
When woods are bare and birds are flown,

for it is by no means alone, and as any wood lover can witness, the woods are not yet bare.

The birds are not all flown, though many are flying away. Nearly, if not all, the warblers have passed, and the majority of the goldfinches are now at the gulf. The robins, bluebirds and thrushes will soon go, though a few will winter here. Chicadees and other northern birds will soon arrive for the winter. None of the birds are in song; the only sounds that break the silence of the forest are unmelodious chips, while now and then

“the querulous cricket grieves
And shrilling locust weaves
A song of Summer dead.”

For summer is dead and autumn is here; to this

“ranks of seeds their witness bear,
And softly through the altered air
Hurries a timid leaf.”

W. R. MURPHY.



THE BLACK BRANT.

(*Branta nigricans*.)

Since earliest spring-time they have sought
The utmost northern isle and shoal;
Their chosen haunt and breeding-ground,
In latitudes beneath the Pole.
The wild-geese and the brant-geese there
In swamps impervious build their nest
(So northern fishermen declare),
Where none may reach them to molest.

—Isaac McLellan, "Coot Shooting."

The Black Brant, or the Brant or Brent Goose, as it is frequently called, is not the brant of the Atlantic coast, but a Western bird ranging from Lower California to the Arctic region of North America. On the Atlantic coast it appears only as a casual visitor and it is not found in the interior. It makes its summer home in very high latitudes and on the Pacific coast the southern limit of its nesting range seems to be about the latitude of the mouth of the river Yukon. Dr. William H. Dall has said that in the spring it comes in immense flocks to the sea coast of Alaska and he found the crop of one of these birds to be full of small crustaceans, though, as a rule, it partakes only of a vegetable diet, feeding chiefly upon eel-grass.

During the time of low tide the Brant feeds constantly, tearing up the plants by the roots from the muddy flats. Unlike the sea ducks, it does not dive for its

food and it is said that it will never dive except when wounded. It passes the night hours floating on deep water in the open sea. It is a noisy bird and quarrelsome with its kind.

Its note is "hoarse and honking," and when a flock gabbles in company, as they often do when feeding, the sound produced cannot be described better than to call it a perfect din.

It is said that the nest of the Black Brant is usually situated in a depression in the ground and consists of grasses and moss lined with down.

Both the Black Brant and its eastern relative (*Branta bernicla*) are sometimes called "barnacle geese." This name is said to have had its origin in a fable which narrates that they were developed out of barnacles attached to wood in the sea. Dr. Coues says that the name Brant means burnt, and that it was given to these birds because of their dark color which suggests charring.

THE TREE OR HOUSE SWALLOW.

The Swallow family long ago made a very strong impression on mankind, and appear in the literature of every age, more or less, for many centuries.

It could not have been for their musical qualities, for they only utter short snatches of song, or rippling twitters while on the wing.

They are not at all pretentious in their plumage, and, withal, may be said to be quite modest, plain folks, but nevertheless they have in some way impressed themselves upon the poets, artists and writers of song.

A landscape seems more to pulsate with life, when the artist has placed a swallow on the wing in his picture, and the poet uses with excellent effect the rollicking acrobat of the air to illustrate his grandest flights of poetic beauty.

The sculptor caught a fancy for their graceful motion and carved them on the obelisks of ancient Egypt to represent some beautiful thought, not yet interpreted.

Just why this little plain, democratic bird should occupy a prominent position in the world's doings can only be guessed at; but somehow, in some way, he has touched a responsive chord in man's soul, who has taken him into companionship with his grandest thinking.

The swallow in turn seems by peculiar instinct to have recognized that man had a fondness for him, and for centuries has abandoned his wild haunts and taken up his abode near the homes of his admirers.

The cliff swallow has abandoned the wilds and the rugged, rocky cliffs, and now builds his nest and rears his young under the eaves, or on the rafters of barns in the country, rarely ever intruding upon the hospitality of the eaves of the dwelling, though nearby.

The same can be said of the Tree

Swallow, who in ancient times, and before this country was inhabited by the civilized man, built his nest in the hollow trees and hollow limbs, but since man has come to this country and built homes, these little happy spirits of the air have abandoned their homes in the wilderness and taken up their abode and reared their young wherever they could find a place in a house to build, and man, seeing this disposition of neighborly love and confidence on the part of the swallow, at once responded to it, and constructed miniature churches and houses and set them on poles in the yard, or on the roofs of houses, which the Tree Swallow soon occupied, and until the last half century they had no one to disturb them, only now and then the little scolding house wren who would fancy their houses and attempt to get possession, but usually failed, and finally took up with a gourd shell that hung in a tree near by, or a hole in some old limb of a tree.

But when that pest, the English sparrow, came to our country, with the persistent pluck of the Englishman in his veins, and the Anglo-Saxon motives in his head, without any very great ceremony or compunction, he pre-empted every Swallow's home in sight, and when the Swallow returned in spring from their winter home, he found the Saxon freebooter in full possession, and, seeing the hopelessness of his condition, returned to the wilderness and the hollow tree, and now one rarely sees a Tree Swallow in city or village.

The same has happened to the martin, a charming social bird, who occupied similar houses as the Swallows, which could be seen on every signpost that stood near country and village store or tavern. They have also been driven away by the sparrows, although they

are a much larger bird, but their lovely song at morning and evening is heard no more.

More than fifty years ago a pair of Tree Swallows built their nest and reared their young in our house. Just under the window sill of the second story was a knot-hole, and into that hole went this pair of Swallows, and between the plaster on the inside and the clapboards on the outside they had a cosy place for a home, and through that hole they jointly carried hundreds of pieces of straw and feathers, year after year, for nest-building, and often I watched the male bird while his mate was brooding, hanging by his little feet on the rim of the hole, singing snatches of love songs to cheer her, while she sat patiently on her nest, and with his cunning little black eyes sparkling with love as he jauntily turned his head, first one way, then another, like an opera singer for effect. It made a very enticing picture.

One day after the young ones were well grown, I raised the window, when the male bird went in to feed them, and put a cage with the open door over the knot-hole, and when he came out he was my prisoner, and I kept him long enough to see how very beautiful he was. His

breast and the lower part of his body was a pearly white, the top of his wings and body were black, and the top of his head and down the back of his neck was a beautiful metallic blue and green, and gave off the splendor of the peacock in the bright sunlight.

I discovered at that time that one of his toes was deformed, and I caught the same bird for three consecutive years, with the same deformed toe. That made me more curious about the Swallows, and when I consulted the books and found that they went a long way to their winter homes, and were seen at that season in great abundance in the South, it set me to thinking. By what process of the convolutions of their little brains could such perfect work be done, and how could it so perfectly guide them year after year to the same little knot-hole, in the same little house of the same little village in the State of New York?

Nothing to me is more wonderful, no achievement of human intelligence is any more difficult to account for.

It can only be said that it is the spirit of that unknown power moving in the organic life—the incomprehensible—that which man calls God.

ANSON C. ALLEN.

THE WIND'S CONQUEROR.

The wind goes shrieking mid the boughs,
It pulls, it tears, it rages wild—
It casts the branches to the earth,
And drift and drift on drift is piled;

And yet he stays—

(That little feathered chirper on the storm tossed bough)

The gales may blow,

Or high or low—

He never thinks of giving up, nor knows he how.

— JAC LOWELL.

THE WHITE-EYED TOWHEE.

(*Pipilo erythrophthalmus alleni*.)

The White-eyed Towhee is a geographical variety of the northern towhee or chewink. Its range is very limited and includes only the southeastern United States, where it is the most common in Florida. In Georgia and South Carolina it grades into the common towhee, which it closely resembles, though it is somewhat smaller; has less white on the plumage of the wings and tail, and the iris is brownish yellow or yellowish white instead of red.

The Florida Towhee, as the White-eye is frequently called, spends much of its time on the ground under the shade of the dwarf palm, where it scratches among the leaves. It is said that it is so active and the individuals so numerous that the sound of the scratching may be heard at quite a distance. One observer of this Towhee's habits says: "These birds are exceedingly inquisitive and will follow one for a long distance through the bushes. They are also sympathetic, for they will gather in large numbers around a wounded comrade, when they hear its cries, evincing the utmost compassion for its misfortune." In general it is a shy and retiring bird and is seldom seen far

from its wooded retreats. It is so frequently seen among the saw-palmettos that it is often called the Palmetto Chewink or Towhee.

The call note of the White-eyed Towhee sounds much like the syllables jo-ree with the accentuation on the last syllable. Regarding its song, Mr. J. C. Maynard says that it does not sing in winter, "but by the first of March the males may be seen on the highest boughs of the small live oaks, pouring forth their song which is lower and sweeter than that of the red-eye. This outburst of song is the prelude to the breeding season, and soon the birds are busily engaged in constructing their nests."

Mr. Oliver Davie says that the White-eyed Towhee has been found breeding as far north as South Carolina. Its nest consists of coarse weeds, pine needles and grass and is lined with finer grasses. It seems to nest both in pine trees, at heights from three to fifteen feet above the ground, and in the dense clumps of saw-palmettos. It has also been stated that the nest is sometimes built on the ground.

SEEDS.

Greenwingéd pods upon the poppies wave,
The hollyhocks are gothic with slim spires,
The balsam's rose and snow have passed away
To little sacks of gold on silver wires.

—ILLYRIA TURNER.



SOMETHING ABOUT PET SQUIRRELS.

The two great phases of life, animal and vegetable, come prominently forward at the spring of the year, the latter being indirectly the means by which the former can exist. In the whole range of animal life, none are more universally attractive than the pretty frisky little squirrels, for no matter to what particular branch of the squirrel family they belong, they each and all combine in themselves exceeding neatness and great attractiveness of form, with wonderful activity and address. Among the whole Order of the Rodentia animals—abounding as they do in groups of high interest to the naturalists, and of species remarkable for their appearance and their habits, the favorites most commonly found in our woods, and to be seen in the public parks of all our leading cities, the grey and the fox squirrels are everywhere regarded as special ornaments, and are the most interesting of the many groups into which the Sciuridæ is divided.

On account of a long familiarity with these little animals as pets I can speak knowingly of their ways and habits.

Should you wish to select a squirrel for domestication, choose a female, giving the common grey squirrel the preference. If possible, acquire it when young, just at a time when it is weaned from its mother, or at any time during its first year of life. The female squirrel has a far more affectionate disposition than the male, and by degrees, will permit itself to be handled in a gentle manner without any danger of giving a sample of its bite. The male squirrel is always more or less treacherous, and will rarely ever brook any restraint while you are petting him, if he wishes to get away. Handled in a kindly manner, and scratched gently under the chin and fore legs, which operation it enjoys immensely, it will soon understand you wish to do it no harm and will become accustomed to your actions.

Among the first things to do is to give the pretty little creature a name. Select a name that has an agreeable and not unmusical sound. Speak its name frequently, calling it when out of the cage, but always proffer it a nut or some choice tid-bit it relishes. In this way it will soon learn its name and will understand you have something good for it to eat, and when you call it, it will always respond with alertness. Extend your arm to receive it as it springs from the floor and, giving it the proffered food, it will perch on your shoulder while it feeds, or, if it is not hungry, will scamper away to conceal the nut until a "rainy day" comes 'round. Keep a small stiff hair-brush so that you can frequently, when it takes a reposing attitude on your knee, brush its back and sides; also, by gently raising it to an erect position, brush the underside of its body. The little chap will enjoy this treatment immensely. Give your pet squirrel a bath in warm water once a week, or once in two weeks; wash the little creature all over, using a good soap, and afterwards wipe dry with a bathing towel. When giving it a bath, place your hand gently over the head and neck, but keep your fingers away from its teeth. To obtain freedom from the first operation or two, it might close down its sharp incisors on a finger, but when it understands what you are doing, it will stand perfectly still, and seems to enjoy the ablution immensely. The squirrel, unlike the cat, is not afraid of water, but it does not often take to it voluntarily. This it does, nevertheless, when emigrating in countless numbers westward, and will swim across large streams. And right here we may say, always keep your pet squirrel supplied with fresh water; it drinks often and should not be neglected in this respect.

The food supplied to a pet squirrel demands some consideration. Like a spring chicken it seems to be always in quest

of food, but with this seeming trait conspicuous to the occasional observer, it is far from being a glutton. It eats what it wants for the time being, never overfeeds, and will often eat only at stated periods during the day, eating what may be called a full meal only twice daily; at other times only nibbling at such food as it has in the open. Its chief propensity in the food line is to store away in all sorts of nooks and crevices the unbroken food it does not consume. If kept closely confined in a cage (which is a brutal way to keep so pretty and active a little creature) it has small opportunity to conceal what it does not eat, but when allowed some measure of liberty in a large room, or in several rooms about the house, it soon finds any number of places where it conceals the nuts and other things it does not use at once.

These places, however, are not always well chosen; for instance, in the pockets of your coat, vest or pantaloons, or between your collar and neck, under the edge of the carpet or under the pillow or bedspread, in slippers or shoes, or in the pockets of clothes that are hung away. If it is out of doors, the nuts will speedily be buried in the ground, or in cavities in the trunks of trees. The next time it gets out in the yard the little rascal begins a diligent and persistent hunt for its buried stores, find them with little difficulty, grubs some of them up, eats a few, even after an interval of days, weeks, or even months from date of hiding. My pet squirrel this spring was taken several times to a large lot where last summer and fall a large number of nuts were buried, and no time was lost in uncovering scores of them. Guided by its nose, the squirrel's scent seemed to be unerring. One after one, it dug the nuts out, smelled them all over, and then buried those it did not eat in a new spot. This propensity for hiding its food is manifested in the squirrel from the very start. It teaches the improvident men and women of our advanced civilization very wholesome lessons, and points out to the improvident the proper way to provide against a time of want.

The squirrel is clean by instinct. If called upon to name the cleanest little animal that lives, it would be the little

bushy-tailed squirrel. I have never yet met any animal, or even bird, whose habits and all whose ways are so genuinely clean. No unpleasant odors of any kind that the most acute smell can detect are emitted from its cleanly little body. All the day long except when at play, resting, sleeping, or taking its meals, the time is spent in keeping its body clean and its tail combed out, which is done by drawing the lateral hairs through its teeth. It washes its face and hands many times a day, employing, when necessary, water from its cup, in its frequent ablutions. It will never soil its own nest.

In the matter of food it has its likes and dislikes, as have many persons. A nut, as the pecan, which it will relish this week to the exclusion of almost any other, next week it will not touch except to hide away. And so it is with the Brazil nut, the English walnut, the hickory nut, for all of which, as well as for other kinds, its taste seems to rotate—moving in a circle. Then its taste comes back again to the pecan, or the filbert, which for a time it lives upon. Its favorite nut is the large imported chestnut, which it prefers in its roasted condition. When these vanish in the springtime, it seems to miss its favorite food. A hard-boiled egg and lettuce are often liked. When the early green corn comes 'round in the latter part of June, it lives high on the succulent kernels. Squirrels are fond of fruit, apples, berries and oranges, in their respective seasons, but eat daintily, never at any time showing voraciousness. It does not like to be disturbed when eating. It growls when an attempt is made to take away its nut, throws out its little hands viciously to scratch, being prevented from biting by the compulsion of holding the nut in its mouth for security against losing it. The only time it ever shows any anger is when an attempt is made to take from its mouth the nut held firmly in its teeth. At all other times it is good-natured and harmless.

Fancying at one time my squirrel would enjoy some beech nuts, and being unable to procure any in this city, I sent to Vermont and secured several quarts. To my surprise "Dickey-Dick" refused them, and did not eat over half a dozen

or so. It did not seem to care anything for them, and the lot was given to the proprietor of a bird store. One thing, however, the squirrel wanted to do, and that was to bury the whole lot, but this was not permitted.

In the matter of handling nuts with its little hands the squirrel shows both the greatest skill and dexterity, combined with accurate knowledge of what it is in search of, i. e., nuts that are sound. Taking the nut in its hands it spins it round and round, smelling it all over, then gives it a scrape or two with its sharp teeth. If it is a sound nut it will proceed to dispose of it, either opening it or else hiding it away for future use. If it is an unsound nut it drops it and will have nothing more to do with it. Here is where its knowledge comes in, and its judgment as to whether a nut is good or bad is unerring. It does not have to open it to learn whether it is sound or not; by a way of its own it has found that out, no matter how thick the shell. It does this by its keen sense of smell, while the teeth assures it that the nut gives out a hollow sound and is not good. Every nut the squirrel picks up is put through this same process, and it saves a lot of work, for it is not a very easy task for the little chap to gnaw into the hard shell of a large hickory nut or a black walnut.

The squirrel eats nothing but clean food, and in order to acquire it will run greater risks in committing little depredations than would other small animals. Its quick movements and remarkable alertness has often saved it from what would appear to be certain death.

The common idea that the squirrel is a strict vegetarian is decidedly incorrect. The squirrel will quickly strip a young bird of its feathers and ravenously devour the daintiest parts of it—the wings and leg. Its only trouble is in catching the bird. It will despoil a bird's nest in a trice, and make a meal on the young birds if they are in the nest. Butterflies are a tempting food for it when it can accidentally catch one. I often feed my pet squirrel a piece of a small bird, and in the summer season catch butterflies for its delectation almost every day.

There is no difficulty whatever in tam-

ing a squirrel. It is marvelous how soon this pretty little animal will become companionable and on the most friendly terms with its captor. Kindness alone and always a proffer of some little tid-bit will win its good opinion. Never frighten it either by strange actions or unusual sounds. Deal gently and kindly with it at all times and your presence and voice will become familiar and the squirrel will soon understand it has nothing to fear. In a little time you can release it from its cage and give it exercise about the room. While it is a fearless and courageous little animal, and does not seem to apprehend any danger from a dog or cat, these latter are not safe to have around when your squirrel is at liberty. Confinement in a cage all of the time is a cruel experiment for the squirrel, and if persisted in, will in time destroy its activity and seriously impair the use it has of its limbs. When you have acquired the complete mastery by kindness, let it out of its cage. Get a small piece of the narrowest silk ribbon and tie around its neck with a firm knot, then with a light "aluminum-steel" chain, some four or five feet long, to which is attached a spring snap, connect with the ribbon, and in a little while you can lead the little fellow around anywhere you go. Get a small strong fish line, thirty to sixty feet long, and give it the exercise it so much needs, in a large yard, or take the little fellow to the parks by putting him in your coat pocket. It will soon learn all that you require, and become a genuine thing of pleasure and beauty.

If you give your squirrel the largest latitude of freedom, the Illinois law (which is probably humane and just) will cause no trouble. My pet squirrel has not been confined in its cage for more than a year. It makes its nest on an upper shelf, and enjoys the full liberty of a large room at all times. Much of the time, in seasonable weather, it is out in the open air—proof against the law because it is not kept in confinement. Nature intended the squirrel to know no bounds to the largeness of its liberty and no limits to its enjoyment. Heartless and witless is the person who would keep the squirrel closely confined in a small cage.

I. W. SICKELS.

THE ROBIN CONVENTION.

Orders, unions, circles and associations are now the fashion of the age, and each of these must have a convention more or less frequently; generally once a year. If you do not belong to something of this kind and occasionally attend a convention, you might as well be "out of the world," for you are certainly "out of the fashion." Our friends the Robins do not propose to be "out of the fashion." If you do not believe that they have associations or unions, you will at least admit that they hold conventions if you will take a walk with me to some bit of woodland or secluded pasture one of these late October days.

Here where the scattered trees are interspersed with clumps of juniper bushes, thickly covered with their blue berries, the Robin clans are gathering from far and from near, a thousand of them, more or less. Noisy fellows they are, too, calling, chattering, laughing and scolding, with great vehemence. We should judge that this convention might be of a political nature, judging by the manners of the delegates. When one of them, dashing past my head, discovers a reporter from the outside world, he exclaims "quit, quit!" in the rudest manner imaginable. Then with an excited "hah, hah!" he rushes off to the bar (a pool of rain water in an adjoining field), where several of the members are already drinking, while some are soaking their heads and one gets in all over; cooling operations much needed, one would say, for the wildest excitement prevails. They chase each other about from tree to tree, having a little

fight every now and then and screaming and calling vociferously.

Now, in the midst of all this hubbub we hear a sharp little rat-tat-tat, tap-tap-tap. Why! it must be the chairman calling them to order. But where is he?

Up there in that tree sits a chipmunk bolt upright with his little paws piously clasped upon his breast as if in prayer. He is probably the chaplain. But the noisy Robins pay no attention to him. Where is the chairman?

Ah! there he is on that dead tree, earnestly rapping away, as if determined to accomplish something. But the robins pay no attention to Mr. Hairy Woodpecker.

And now for a rest from all this noise let us climb the rail fence and stroll further on into the more open woods.

No juniper bushes here, and apparently no birds either, for a most restful silence prevails. A brown creeper goes circling up a tree trunk near us, but his little curved bill (though conscientiously probing every crevice in the bark for insects) makes no noise. Presently a red squirrel sets off his alarm clock with a loud chir-r-r-r, and a chipmunk sharply exclaims "chip-chip."

Returning through the juniper wood, we find the convention still in progress, but the earnest discussion is occasionally interrupted by a singer breaking out into the Robins' springtime warble—toor-a-loo, toor-a-lay; toor-a-loo, toor-a-lay; toor-a-loo, toor-a-lay. Perchance he is thinking of the south-land and spring-like clime to which they will soon be going.

JESSIE PORTER WHITAKER.



FROM COL. CHI. ACAD. SCIENCES.

GREEN WOODPECKER (Europe).

(*Picus viridis*).

About $\frac{4}{5}$ Life-size

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THE GREEN WOODPECKER.

(*Picus viridis.*)

Nature has appointed the woodpeckers conservators of the wood of old trees, furnished them admirably for their office, and so formed their habits, that an old tree is an Eden to them, fraught with safety, and redolent of plenty and fatness.

—Robert Mudie.

Not unlike its relatives in our own country, the beautiful Green Woodpecker of foreign lands finds in a tree "a castle, a pasture, a larder, a nursery, an alarm-drum and a lute." It frequents the ancient forests of Europe, Asia, where it is even found to some extent in the temperate climate of Siberia, and in northern Africa. As it is a bird of wide distribution, found in many countries and known to all classes of people, it has been given many common names. Space forbids an enumeration of all of these names, but a few of the more common ones may be mentioned. Some of them, such as Hew-hole, Pick-a-tree, Awl-bird and Nickapecker, are eminently suggestive of the birds' habits, and the names High Hoe, Popinjay, Yoppingall and Whittle are not without meaning.

The Green Woodpecker is quite frequently called the Rain-bird, or Rain-fowl, for it is very active and quite noisy as the "drought begins to soften," a short time before a shower. At this time its harsh note, which has been described as sounding like "glu, glu, glu, gluck," is much more in evidence. It is natural that this bird should be more active as the moisture increases, for in the time of long drought the plant tissues are more or less hardened by the evaporation of the liquids confined within them and many insects, especially those that live in woody tissues, are less active or may remain quiescent. Happy indeed is the bird when the accumulating moisture awakens the activities of the plant, softens its tissues and thus enables the

insects to again seek food. "The insects and the worms come out; the birds feed; new life returns; the tuned instrument is soon in use; the groves are in song the livelong night." There are a number of the insect-eating birds that seem to augur the coming rain by increased activity, especially after a long dry season, and some of these have also been called rain-birds.

In parts of England this Woodpecker is called Yaffle or Yaffil, because to some people its notes sound like a laugh. The poet has referred to this in the following lines:

The sky-lark in ecstacy sang from a cloud,
And chanticleer crow'd and the Yaffil laugh'd
loud.

Another popular name, but one that is used with less frequency, is Wood-spite. The first word of this name has reference to the green color of the bird, which is similar to the color of the foliage of the woods it frequents. The word spite is probably a modification of the German word specht—a woodpecker. It has also been suggested that this name may have arisen from the vigorous strokes of the bird's bill against the tree appearing like an exhibition of spite.

Like other members of the woodpecker family, the bird of our illustration only ascends trees by moving obliquely and in a spiral. As it ascends, it carefully examines the bark, tapping and listening as it progresses. On reaching the top of the tree it flies downward to the base of another tree to again repeat the process of ascending, tapping and listening. Occasionally it is seen in hedges, and in severe weather it may seek its food in the walls

of old buildings and in cultivated trees. Its hard and sharp bill enables it to penetrate even the hard wood exterior of trees in its search for insects in the somewhat decayed portions within. When the work of its bill has opened a passage to its prey its tongue is used for the extraction of the food. It is an extensile organ and barbed with reflected bristles. It catches insects found on the surface of the bark or upon the ground by the use of the tongue only and the rapidity with which it is moved is wonderful. Reverend F. O. Morris describes its tongue when in motion, as having "the appearance of a silver ribbon, or rather, from its transparency, a stream of molten glass, and the rapidity with which it is protruded and withdrawn is so great that the eye is dazzled in following its motions; it is flexible in the highest degree."

The Green Woodpecker not only feeds upon the grubs that bore in the wood of trees, but also upon the various insects that it finds upon the surface. It will also feed upon the eggs of insects, and ants are dainty morsels of food and of these it destroys a large number, seeking them upon the ground as well as on the trees. Bewick says that the Green Woodpecker will not only use its bill and tongue in its search for ants on the

ground, but will also use its feet to scratch away the leaves and dirt.

The Green Woodpecker nests either in a natural hole in a tree or in one that it has excavated. It never attacks a tree for this purpose that is perfectly sound, but only those that are more or less decayed within. Here the labor is light and there is usually an abundance of food near by. Both sexes assist in the work of excavating through the healthy exterior wood and so rapid are the strokes of their bills that it is impossible to count them. The holes are not lined and the eggs are laid on the powdered decayed wood in the bottom or upon a few chips that are left from the chiseling of the hard wood. The young birds leave the nest and run on the tree before they are able to fly and it is said that if they are taken from the tree at this time they may be raised in captivity and will become quite tame.

The woodpeckers are among our most useful birds. Though they do not feed to any extent upon the insect pests of the meadow, the grain field and the garden, they do destroy a large number of the borers and other insects that are injurious to trees. "The aged tree is all to the woodpecker and the woodpecker is much to the aged tree."

THE TRAGEDY OF A WAXWING.

He was perched on the very top limb of a flourishing mountain-ash tree, the first time we saw him one bright day in autumn, as free as the air about him and as handsome a specimen of the species "*Ampelis cedrorum*" as one would wish to see. The tree was loaded with fine clusters of scarlet berries, ripe and luscious from a bird point of view and the bird was surrounded by a large party of his friends. They had all stopped for a rest while on their journey southward and were chattering gaily as they held

a regular banquet. The tree stood directly before the home of the Bedell family and at the moment Jack and Jerry Bedell, with their little sister Bessie, were watching the birds from the library window.

"They are cedar birds," remarked Jerry.

"Yes," said Jack. "They come every year about this time. I have been looking them up. Here it is," turning to the dictionary, "an Ampeloid bird, having soft, mainly brown plumage, an erectile

crest, and the tips of the secondary wing feathers, sometimes of the tail feathers also, tipped with horny appendages, resembling red or yellow sealing wax."

"Brown plumage!" said Jerry. "I should call it gray. The softest, loveliest shade of gray."

"Erectile crest means that fine top-knot that makes him look so proud, doesn't it?" asked Bessie.

Jack did not answer. He was watching a boy across the street. He saw him halt, raise his arm, take aim with a sling-shot; then Jack sprang for the door but he was too late. The deed was done and the beautiful bird lay fluttering on the ground, and the boy disappeared around the corner.

Thus it was that Mr. Waxwing came to the Bedell family. Bessie picked him up and carried him in to her father.

"He can't live," said Mr. Bedell, "but we will relieve him of this useless appendage anyway," taking up the scissors as he spoke and clipping away the broken wing.

To every one's surprise, after a few days of drooping, the bird began to eat heartily of the mountain-ash berries that the children provided.

Then he began to follow the children here and there about the house with the funniest little hops. Bessie was delighted with her quaint pet, and soon named him Hippity-hop. He could not fly the least little bit, of course, with but one wing, not even balance himself should he have a fall. The children were very careful of him and often lifted him from dangerous places, but the loss of his wing finally led to his undoing.

Long ago his companions had departed for the far South, and Hippity-hop seemed really happy in his new environment. At mealtime he followed the children to the table and received his share of the good things with, we thought, a thankful heart. Jack made him a cage but his free soul disdained bars. He

would squeeze himself through the narrowest places until Bessie insisted that he would hurt himself and refused to allow him to be caged except at night. When the lights were shining brightly in the evening, he would follow the family to the library, and perched upon the rung of a chair, would spend the evening there, blinking at the illumination, which he could not understand. At bedtime Bessie placed berries in his cage and covered it over carefully that he might be cheated into thinking that dawn was yet night, but in spite of that, he was always up early in the morning and could be heard tapping about, in and out of the bedrooms, calling, so Bessie declared, "time to get up—time to get up," to every one in the house.

Mr. Waxwing had been a respected member of the Bedell family for nearly six months when one morning he chirped through the rooms as usual. It was getting toward Spring and he was able to spring to the low window sills and preen his beautiful plumage in the bright sunshine that poured in with grateful warmth. He had completed his toilette, times over, and called the children again and again. But they were lazy that morning and it was not until a sharp frightened chirp was heard, that Bessie sprang from her bed and ran out in the hall. Then there was a dull thud. Hippity-hop had started to go down stairs by himself and had walked off the landing between the banisters and had fallen to the floor below. Just once he opened his bright eyes on Bessie, as she bent over him, and then the film of death settled over them and he was gone. "It is all my fault," sobbed Bessie, and for the time being, all promises of white rabbits or other pets failed to console her in the least and spring and fall she watched the waxwings pause in the mountain-ash tree with a little sigh for the lost Hippity-hop.

E. HARRIOTT PALMER.

THE HABITS OF THE KING RAIL.

(*Rallus elegans*.)

The family Rallidae includes nearly two hundred species and sub-species of birds. They are distributed over the greater portion of each continent, the coots, gallinules and rails being the American representatives of this interesting family.

The rails, whose feet and legs are remarkably developed for the purpose, traverse the almost impenetrable swamps and quagmires with unequaled agility, taking wing only as a last resort. Rails are less aquatic than coots or galinules, and though not gregarious are seldom found breeding in isolated pairs. Frequently several varieties of rails occupy their respective nests within a few yards of each other, and again all three species will deposit their eggs in a single nest, which is usually that of a King Rail, the largest of the genera.

The Marsh-hen, King, or Red-breasted Rail, is brown in color of varying shades, and the feathers are streaked or mottled with black. The sexes are indistinguishable and the young are covered with down which is jet black. The body is very slim and compact, enabling its owner to pass through tangled vegetation without hindrance.

The restricted breeding range of the King Rail includes the eastern portion of the United States, westward to the states bounded on the east by the Mississippi River. In Wisconsin, southern Canada and Maine this Rail is known only as a casual visitor. The states bordering on the Great Lakes—Illinois, Indiana, Ohio, Michigan and New York—probably contain the most popular resorts of the King Rail, where it nests abundantly in suitable localities. South of the Ohio River the King Rail occurs in limited numbers and is undoubtedly a permanent resident wherever found. On the sea-coast

the King Rail is replaced by a salt water variety known as the clapper rail. The two species are closely allied, but the latter may be identified by its smaller size and paler colors.

I have devoted considerable time to the study of the King Rail—both during its migrations and in its domestic life—and I consider it one of the most bold, shrewd and fearless of water fowls. No one should be surprised at the antics of a rail. A neighbor discovered one in her front room after leaving the door ajar one morning. King Rails have been observed about the barnyard in company with the poultry. On several moonlight nights, between the hours of eight and ten, during the months of May and June, I have heard and seen this droll looking bird strolling about the streets of Chicago, perhaps one-half mile distant from the nearest marsh. This may be called one of its nocturnal escapades, and as it wanders from yard to yard its curiosity increases. It ventures upon the sidewalk and poses under the light of a street lamp and suddenly becomes hilarious, “clucking,” “cackling” and “creeking,” its hoarse voice breaking the silence of the calm spring atmosphere, and then it vanishes as if by magic.

Nest building begins in April and often requires a week for completion. Fresh eggs may be found from the first day of April to July, the time varying according to locality and season. On or about the eighteenth of May is the best period to study the nesting habits of this rail in northern Illinois and Indiana. Usually a complete set of eggs, ranging from eight to fourteen in number, has been laid and the parents have begun the duties of incubation which cover a period of three weeks.

Clumps of dead rushes, fallen reeds or tussocks of marsh grass are favorite nest-



ing places, and so attached do the birds become to some selected corner of the marsh, that the same pair return annually to their chosen spot. The nest proper is generally built of those materials which surround and conceal the site, and is so constructed with an opening on the side, sufficient in size to admit the owner, that it is almost impossible to see from above, the sitting bird or her eggs without first parting the vegetation. In several instances I have been obliged to lift the incubating bird from her nest that I might obtain a view of her treasures.

The eggs exhibit considerable diversity in size, shape and color. Typical eggs resemble those of the domestic fowl in shape. The background of the egg may be bluish white, creamy buff or light brown. The markings consist of specks, spots, blotches and scrawls of numerous shades of red, brown and lilac. In size the eggs range from one and fifty-hundredths inches to one and ninety-hundredths inches long by one and twelve-hundredths inches to one and twenty-eight-hundredths inches wide.

GERARD ALAN ABBOTT.

THE BIRD OF FOUR HUNDRED TONGUES.

The mocking bird is wronged by his name, for he is not a mere mimic of the songs of other birds, but has a true, original song of his own, a rich, dreamy melody—the poet to the contrary notwithstanding, who says:

“List to that bird! his song, what poet pens it?

Brigand of birds, he’s stolen every note.
Prince though of thieves—look how the rascal spends it—

Pours the whole forest from one tiny throat.”

The Mexicans aptly style the mocking bird the “Bird of Four Hundred Tongues,” as his music is so often imitative of the songs of other birds, which he intersperses with cat calls, hawk screeches and the “peep-peep” of young chickens. His kaleidoscopic song has endless combinations, but his song notes remain the same. For vocal power he is unrivaled among birds. His own notes, aside from those he imitates, are bold, full and varied, resembling those of the brown thrush, only more sweet and rapid.

When caged, he has been taught to whistle “Dixie” and to imitate airs played upon the piano.

To only a few observers has it been given to hear his famous “dropping

song,” although it is not so very uncommon in his native haunts. An Indian woman I know in the Territory has an orchard full of mocking birds. She is accustomed to pet the young ones in their nests, and is on terms of intimacy with the parents, yet she has never heard the famous “dropping” song, or seen the bird as it falls from the tree top, spray by spray, to the ground, as if overcome by the rapture of his vocalization.

I have myself watched and waited through flowery spring days in expectation of hearing Sir Mocker’s dramatic performance, but he only gave me his usual morning and evening songs, with nothing of the actor to be seen.

In dress of shimmering gray, with silver-white flash of wings, and clear, pale-gold eyes, he is an attractive artist even when at rest, for he is inclined to be sociable with people who are kind to him. For them, too, he often sings his best songs, coming at early dawn to a tree near some open window:

“Each golden note of music greets
The listening leaves divinely stirred,
As if the vanished soul of Keats
Had found its new birth in a bird.”

BELLE PAXSON DRURY.

AUTUMN FLOWERS.

Thoreau counsels those who are afflicted with the melancholy of autumn to go to the swamps "and see the brave spears of skunk-cabbage buds already advanced toward a new year." During your autumn outings watch for its purplish shell-like leaf which curls about its tiny hidden flowers. Its bright purple-mottled spathe adds much to the colorpageant of our fall months. The children will be pleased to have their attention directed to the bowed, hooded appearance of the leaves suggestive of the cloak and cowl of a monk.

Its very unpoetic name is because of its unpleasant odor. In some localities it is known as the bear-weed because the bears relish it.

Thoreau reflects "mortal and human creatures must take a little respite in this fall of the year, their spirits do flag a little, there is a little questioning of destiny and thinking to go like cowards to where the weary shall be at rest. But not so with the skunk-cabbage. Its withered leaves fall and are transfixed by a rising bud. Winter and death are ignored. The circle of life is complete. Are these false prophets? Is it a lie or vain boast underneath the skunk-cabbage bud pushing it upward and lifting the dead leaves with it?"

We have usually associated this cousin of the spotless calla with the first balmy, spring-suggestive days of February, or early March, but close students and lovers of nature find the young buds pushing their way up through the leaf-strewn moist soil even so late as October.

Another member of the Arum family greets us with a great cluster of bright scarlet berries. It brings to mind Jean Ingelow's song of the cuckoo-pint which is the English name for our Jack-in-the-pulpit or Indian turnip. The Indians boiled these berries and ate them with great relish. They also discovered that the bulb-like base or corm as it is called, lost its acidity in cooking and made nutritious food winning for the plant its name of Indian turnip. A quaint legend

is told of the dark, purple stains on the spathe of these plants:

"Beneath the cross it grew;
And in the vase-like hollow of the leaf,
Catching from that dread shower of agony
A few mysterious drops, transmitted thus
Unto the groves and hills their healing stains,
A heritage, for storm or vernal shower,
Never to blow away."

Gilding the meadows, illuminating every woodland, the bright flower heads of the wild sunflowers nod gravely to us, lifting their heads sunward, always doing honor to their great benefactor, the sun-god, and making acknowledgment of the debt they owe him by that subtlest of flatteries—imitation, with the result that a myriad miniature suns shine upward from meadow and roadside.

What the lotus was to the East, so was the sunflower to the ancient Mexicans. It served in their temples as a sign and decoration, the sun-god's officiating hand maidens wearing upon their breasts representations in beaten gold of this sacred flower.

Conspicuous amongst these blazing torches of the harvest months, rears the stately golden rod, converting dry, lonely fields into fields of the cloth of gold. The lavish spread of beautiful orange clusters and thick bright green leaves invite us to carry arm-loads of it to our homes and school-rooms.

The old legend connected with this flower, which even the city-bred children know and love, will be interesting to them.

A long, long time ago the golden rod was an elm tree with rough, gray bark and dark green leaves, which in autumn turned to golden yellow. The fairies who danced on mid-summer nights on the green near by loved the stately elm and one night during a terrible storm took refuge under its thickly leaved branches.

Proud of this appeal to its love and kindness, the magnificent tree wrapped each of the dainty little folks in one of its smooth leaves. So grateful were the fairies for this protection that the fairy-

queen changed the leaves into shining gold and the trunk and branches into beryl. But poor tree! Its value was no sooner known than it was visited day and night by men who stripped it of its wonderful leaves and when the elves once more danced in the meadow, they found only the naked trunk to greet them.

Indignant at this treatment again the fairy-queen touched it with her wand and the beryl trunk was changed to a green stem from which sprung clusters of golden flowers. Now it became the fairies' cherished plant and on moonlight nights if you are worthy of a sight of the "wee folks" they may be seen dancing merrily in its shadow.

Along the water's edge the brilliant red gleam of the cardinal flower attracts us.

"As if some wounded eagle's breast
Slow throbbing o'er the plain,
Had left it airy path impressed
In drops of scarlet rain."

So richly attired is this flower that it has received a name which likens it to the magnificently attired dignitaries of the Roman church.

Growing along the roadside in moist, shadowy places we find the deep-tinted, bronze-leaved gentian, whose

"—Sweet and quiet eye
Looks through its fringes to the sky,
Blue, blue as if that sky let fall
A flower from its cerulean wall."

"Heaven's own blue," Bryant paints it.

And now the pale, yellow, fragrant blossoms of the witch-hazel cause throbs of delight as we gather and admire it from the hill-side. It blossoms when its leaves have fallen and its nuts ripened. The pleasure experienced at the spring-like apparition of this leafless yellow-flowered shrub in the autumn woods, arises from the thought it suggests that in the midst of death we have a foretaste of life—a prophecy of the great yearly resurrection which even in autumn, the dying time, we may anticipate. The Indians long ago discovered the value of the bark of the witch-hazel for medicinal purposes, and it is now utilized in many well-known extracts.

The erect, slender weed that you see about the highways, with low rosettes of woolly leaves and yellow blossoms on their long spikes is the mullein. The colonists brought it from Europe, although in England it is known as the "American velvet plant." The Romans dipped the long, dried stalk in suet and used it as a funeral torch. The Greeks utilized the leaves for lamp-wicks. "Mullein-tea" is greatly esteemed by the country people for pulmonary complaints of men and beasts.

Each autumn Mother Nature dons this regal mantle of purple and scarlet and gold, then "rests and sings like Ruth among her garnered sheaves, her lap being full of goodly things."

EMILY F. BASS.

THE NESTING OF A CARPENTER BEE.

(*Clisodon terminalis*.)

About the middle of August when the flowers are at their best in our mountain canyon (Beulah, New Mexico), and the wild bees and butterflies have a daily surfeit of nectar, this clever little carpenter goes to work to make a storehouse and to provide for the young of the next generation. Many bees and wasps make their nests by cutting out burrows in trees and bushes, but few work as quickly and skillfully as *Clisodon terminalis*.

Last summer I watched with much interest a number of these bees at work making their homes in an old pine tree that had fallen by the roadside. One bee had just begun her labors, and had hardly cut through the bark when I first saw her, her strong mandibles worked like tiny saws on the wood, and the sawdust looked a miniature storm as it was scattered by her quickly moving legs.

A bee near was much farther along

with her work, and was very busy inside a burrow about four inches deep. For some time she kept up a great humming and buzzing, but at last the work inside was finished to her satisfaction, and she flew away for pollen and nectar. While she was so busy on the inside she was lining the small bulb-like cell at the bottom of her burrow, into which she now put her stores.

The burrow must be excavated according to a pattern approved by many ancestors of the bee, and should a knot or decayed place be encountered which would in any way interfere with this plan, the little builder, after much fretting and investigating, will begin another burrow. The cell is made by lining the burrow with sawdust, mixed with the secretion from glands near the mouth, making a delicate, but impermeable coating.

The *Clisodon terminalis* does not have baskets on its legs as does the honey bees and bumble bees, but the whole outer surface of the posterior legs is covered with stout white hairs, forming brushes in which much pollen can be carried.

I could not discover how many loads of pollen and nectar were necessary for each cell, but it must have been a considerable number, for when I opened a cell I found it more than half full of a pasty mass with a strong and disagreeable odor.

When sufficient food has been provided the bee lays a small white egg in the midst of the sticky mass, and then there is more humming and buzzing while a cover is made. The cover is of the same material as the cell-lining, but several times as thick, for upon it another cell

must rest—in some cases three or four, though the burrow always slants so that the whole of the weight of the upper cells will not rest upon the lowest one.

The egg soon hatches into a small white grub and all the provisions are used by it as it grows larger until it just fits snugly into the small bulb so artistically formed by the mother. Now it rests quietly until the summer sun makes possible the various processes necessary in changing a grub into a bee. Then the young bee, with its strong jaws, cuts through into the next cell and if all has gone well, it is then free to crawl into the bright world, but if the growth of the bee in any of the cells above it has been retarded or stopped, it is said that the young bee waits, even dying in its small prison house so strong is its instinct against harming one of its own kind.

We hear much of the unerring instinct of animals, and a creature with such skill and agility as *Clisodon terminalis* might be supposed to possess such instinct in a high degree, yet I found in the half dozen burrows that I studied several cells that had been provisioned and sealed, but which contained no egg!

The genus to which this bee belongs has been separated from *Anthophora* on account of its three-toothed mandibles, the *Anthophora* having mandibles with two teeth. It is interesting to see how this difference in structure corresponds with so marked a difference in habit, for the *Anthophoras* nest in the earth and do not need as complex tools as a bee that must cut several inches through hard wood.

WILMATTE PORTER COCKERELL.



SPECIMENS LOANED BY F. J. ESS G.

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ORNAMENTAL STONES.

Satin Spar, polished (Italy).
 Thulite, polished (Norway).
 Serpentine, polished (Cornwall, England).

Smithsonite, polished (Greece).
 Serpentine, polished (Cornwall, England).
 Serpentine, rough (Cornwall, England).

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ORNAMENTAL STONES.

RHODONITE.

Rhodonite is a silicate of manganese, of a pink, or flesh-red color. It does not furnish transparent gems, but occurring massive in large pieces affords material for table-tops, vases, jewel-boxes, paper-weights, and other large objects in which such a color is desired. The stone has a slight translucency, which heightens its effect when polished, and it is also like jade in being quite tough. The Russians use it more extensively perhaps than any other people, often introducing it into ornamental and decorative works, and it is a stone especially prized by the imperial family. Its hardness is 5.5-6.5; its specific gravity 3.4-3.7. Before the blowpipe it fuses easily and becomes black. It crystallizes in the triclinic system. Its chemical composition when pure is, silica 45.9; manganese protoxide 54.1. Rhodonite occurs in a number of localities, the district of Ekaterinburg, in the Urals, affording that used by the Russians. Here it occurs in a massive, marble-like form. At Cummington, Massachusetts, according to Mr. G. F. Kunz, large quantities of a pink and red color occur which have been used for ornamental objects. A feature of this rhodonite is its being mottled and streaked with black, which causes it to blend prettily with silver. Rhodonite, of the variety of fowlerite, that is, containing zinc, occurs among other zinc ores at Franklin, New Jersey. It is sometimes used for ornamental purposes.

THULITE.

Another rose-red massive stone is furnished by the variety of zoisite, known as thulite. This resembles rhodonite in color somewhat, but is easily distinguished by its chemical characters, zoisite being a hydrous silicate of calcium and

aluminum. It is somewhat harder than rhodonite, its hardness being 6-6.5. The name thulite is from Thule, an ancient town of Norway, and the occurrence of thulite is confined almost exclusively to that country. Its use for ornamental purposes is very limited; but it answers well to supply objects of this particular color.

PRECIOUS SERPENTINE.

This mineral resembles jade in appearance and properties, and is suited to many of the ornamental uses to which the former is put. Not a little so-called jade is doubtless serpentine. The hardness of serpentine is somewhat below that of jade, it being 5.5, and lower. It is also lighter, its specific gravity being 2.50-2.56. The blowpipe and chemical characters also distinguish it, serpentine being practically infusible before the blowpipe, and decomposed by acids, while jade is more or less fusible, and not attacked by acids. In composition serpentine is a hydrous magnesium silicate having the percentages, silica 44.1, magnesia 43.0, and water 12.9. Like jade it does not crystallize, but occurs in massive forms, which show crystalline structure. One of the most pleasing properties of serpentine is its luster, which is sub-resinous to oily. This, coupled with the translucency which characterizes most precious serpentine, and the excellent polish which it takes, makes the stone of rich effect.

The color of precious serpentine is primarily some shade of green, varying from yellowish green to blackish green. This color may be uniform or mottled, or may include spots of other minerals, such as white from calcite, as in several of the serpentine marbles, or cherry-red from iron oxide, as in the serpentine of

Lizard, England. The name serpentine alludes to the green, serpent-like cloudings best seen in serpentine marble.

Precious serpentine is obtained in many parts of the world, among which may be mentioned Afghanistan (which furnishes an almost transparent variety in large masses), the Island of Corsica, Fahlun and Gulsö in Sweden, the Isle of Man, and the Lizard, Cornwall, England.

In the United States a rich green variety of serpentine, known as williamsite, is found in Texas, Lancaster County, Pennsylvania, and is cut into various charms and ornaments. It varies in color from dark green to light apple-green. A golden to greenish yellow serpentine occurs at Montville, New Jersey, which would admit of use for the manufacture of small objects, such as dishes and charms.

A variety of serpentine known as bowenite is found near Smithfield, Rhode Island, varying in color from pure white to deep green.

A dark green serpentine occurs at Santa Catalina Island, California, which is of sufficient homogeneity to be turned into dishes of various shapes, some being seven or eight inches in diameter.

Serpentine marble, which usually consists of a mixture of serpentine and calcite, forms quite extensive deposits at several localities in the country, among which may be mentioned Moriah, New York; Dublin, Harford County, Maryland; National City, California; and Valley, Washington. This is used like marble as slabs for table tops and wall decorations.

Coarse, common serpentine forms extensive rock masses, and mountains of it exist; but the use of the mineral for ornamental purposes is confined to pieces of pleasing color, homogeneity, and translucency.

ALABASTER.

(*Calcite, Gypsum.*)

The term alabaster is derived from a kind of ointment vases called alabastra, which the Egyptians and peoples of a later period were accustomed to carve out of stone. This stone was largely a

stalagmitic calcite obtained at Thebes, but it is probable that gypsum was also used to some extent. At the present time the term is used loosely for either of these minerals when employed for the manufacture of ornamental objects, although stalagmitic calcite is now more generally designated as onyx.

Both calcite and gypsum are soft minerals, the hardness of the former being 3, and that of the latter 2. They are not therefore fitted to endure wear, and can only be employed for objects such as vases, boxes, statuary, etc., not likely to be subjected to much attrition. Both stalagmitic calcite, however, and gypsum take an excellent polish, and preserve it if properly cared for.

The term alabaster when referred to gypsum is limited to the fine-grained granular variety usually white or delicately shaded. It is obtained largely at Castelino, near Leghorn, in Italy, and is used for carvings of various sorts. Objects are often sold under the name of alabaster that have been made out of plaster of paris by molding. Their value is much below that of true gypsum alabaster, from which they can be distinguished by their lack of translucency.

Another form of gypsum used for ornamental purposes is that known as satin spar. This is white, with a delicately fibrous structure, and exhibits when polished a beautiful silky luster and pearly opalescence. Large quantities of this are cut in the form of necklaces, charms, and similar objects and sold at Niagara Falls and vicinity to tourists as made from material found at the Falls. Although gypsum occurs there it is not in this form, and the material used in this way is really obtained in Wales.

Objects made from calcite can usually be detected by their softness, scratching easily and deeply with a knife, and by their effervescing when touched with a drop of any common acid. In the form of Mexican onyx calcite is extensively used for ornamental purposes, and many locally fashioned stones, such as the Petoskey, Michigan, fossil corals (often called agates), and the Gibraltar stone of Gibraltar belong to this mineral species.

SMITHSONITE.

Smithsonite is a carbonate of zinc mined extensively as an ore of that metal and sometimes possessing sufficient translucency and beauty of color to make it prized as an ornamental stone. This is especially true of that obtained at Laurium, Greece, the colors exhibited being usually shades of blue and green and the luster of a somewhat velvety character. While the use of this is not extensive the effects which it gives are often quite pleasing.

Smithsonite does not have sufficient hardness to resist scratches, but it is harder than alabaster or satin spar. An interesting fact regarding the mines at Laurium is that they were worked by the Romans. The smithsonite obtained at various localities in our own country is usually dull white in color and hence of no value for ornamental purposes, but a variety obtained near Joplin, Missouri, is colored deep yellow by cadmium and is quite ornamental.

OLIVER CUMMINGS FARRINGTON.

AN OCTOBER SNOW SQUALL.

With a whirl and a scud from the windy north
Come the snowflakes thick and fast.
The air is alive with white, fluttering forms
Borne on by the wintry blast.
And a whitish-gray curtain whose warp and woof
Are the mingled snowflakes small
Reaches down from the sky, and sways in the wind,
Concealing and darkening all.

Now more swiftly and wildly the snowflakes whirl,
More fiercely the wind sweeps by;
Snow-white is the roof of the cottager's house,
Gray streaks on the brown fields lie.
But look! The wind drives the thick curtain away.
The white hills come into view;
And the sky appears with its dun, ragged clouds,
And its one bright spot of blue.

—MARY M. CURRIER.

THE GRASSHOPPERS.

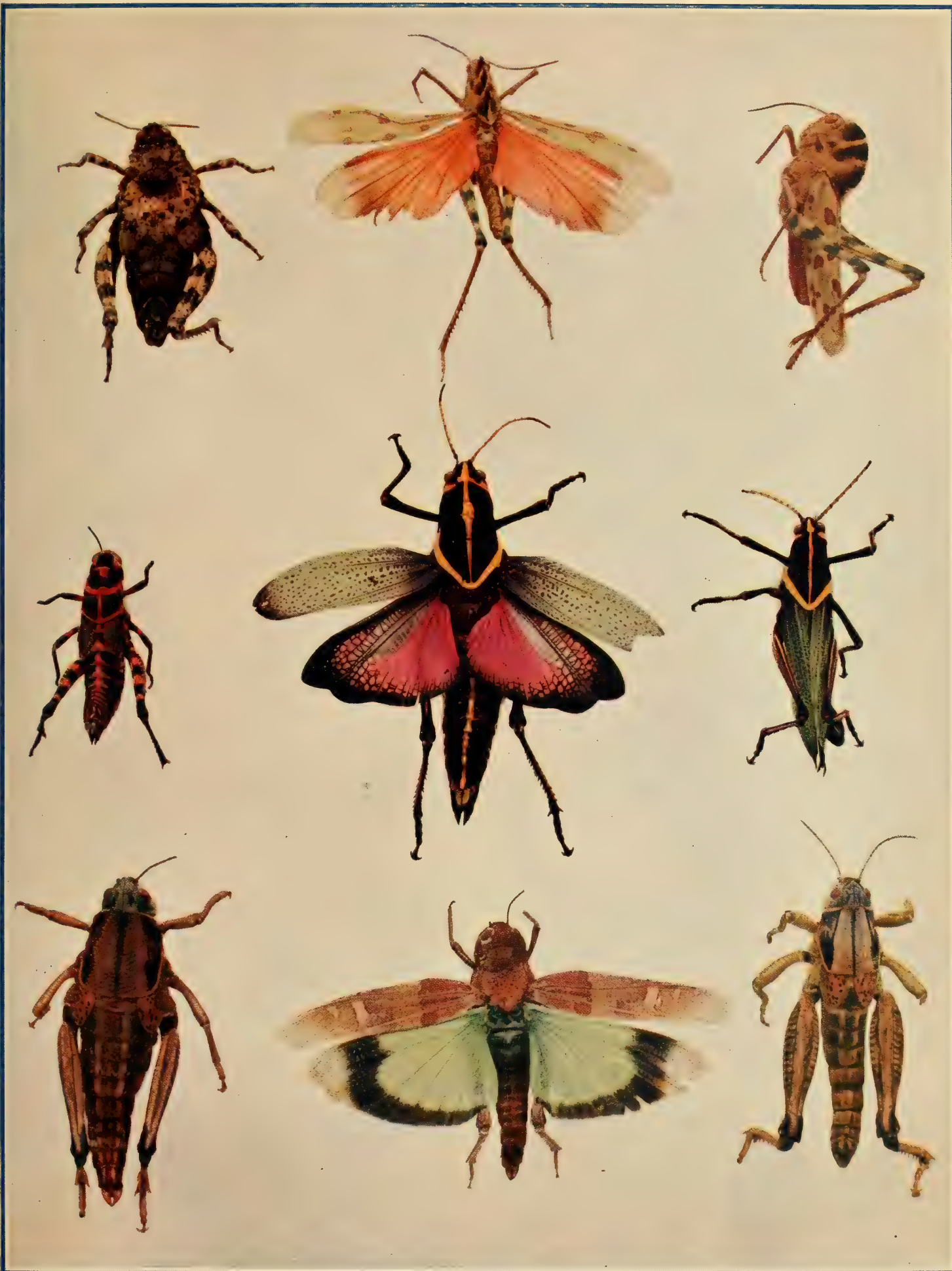
The Grasshoppers belong to a large and interesting group of insects. To the uninitiated observer these insects are all "Grasshoppers" and for them he has only this one common name. Mr. W. S. Blatchley, in a recent report on those of these insects found in the state of Indiana, relates an instance that occurred when he was seated in the lobby of a hotel. A large "lubberly locust," attracted by the light, flew into the room. "Several of the guests, men of intelligence, saw me pick it up and immediately surrounded me and asked me what it was. I told them that it was a locust or grasshopper, and that fifty or more species of the same family of insects occur in Indiana. All seemed much surprised and a number of them made the statement that they thought there was but one kind of grasshopper in the state."

The Grasshoppers belong to that order of insects called the Orthoptera, a name derived from two Greek words meaning straight and a wing. The name is very appropriate for this group of insects for the wings when in repose are lain against and lengthwise of the body. There are two pairs of wings, which are more or less developed, though in some species they are wanting. The insects of this order may be divided into two classes: the running Orthoptera, which includes the cockroaches, earwigs, walking-sticks and walking-leaves, and the leaping Orthoptera, to which group belong the Grasshoppers, locusts and crickets.

The common Grasshoppers which frequent meadows, pastures and roadsides are known as the short-horned forms and belong to the family Acridiidae, a word derived from the Greek diminutive meaning little locusts. They possess the four pairs of wings, the inner two being membranous and used in flying, and the outer two, coarser and simply a covering for the more delicate inner pair.

The call notes of the Grasshoppers, which are only made by the males, are produced in two ways. "In one group, whose members call only when at rest, the sound is produced by rubbing the inner surface of the hind femur against the outer surface of the wing covers. Landois has shown that in this group, the inner surface of the femur is furnished along the lower margin with a longitudinal row of minute, lancet-shaped, elastic teeth, ranging in number from eighty-five to ninety-three, which are scraped across the veins of the wing covers, thus producing a low buzzing sound." In a second group the call notes are usually produced during flight by "rubbing together the upper surface of the front edge of the wings and the under surface of the wing covers." This instrumentation rather than vocalization, causes a crackling sound which is not dissimilar to that of burning stubble.

There is another family of Grasshoppers (Locustidae) which includes the long-horned species or katydids. They are green in color and have very long antennæ; are more delicate and fragile than the short-horned species, and are notable singers. The musical organ of these Grasshoppers is "found at the base of the overlapping dorsal area of the wing covers and usually consisting of a transparent membrane, of a more or less rounded form, which is crossed by a prominent vein, which, on the under side, bears a single row of minute file-like teeth. In stridulating, the wing covers are moved apart and then shuffled together again, when these teeth are rubbed over a vein on the upper surface of the other wing cover, producing the familiar so-called katydid sound." Some of the species have two calls, one that is used only in the night, and the other during daylight. Not infrequently these Grasshoppers will utter the night call during



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Phrynotettix tschivavenensis (Female).
Dactyloctenium variegatum (Male).
Brachystola mexicana (Female).

GRASSHOPPERS (Mexico).

Tropidolophus formosus (Male).
Taeniopoda picticornis (Female).
Leprus elephas (Male).

Life-size.

Tropidolophus formosus (Female).
Taeniopoda picticornis (Male).
Brachystola mexicana (Male).

the day, if the sun be obscured by a dark cloud. It is said that a practiced ear can distinguish the song produced by the stridulation of even closely allied species.

The life history of the Grasshopper is, unlike the butterflies and moths, an incomplete metamorphosis. The latter insects have four distinct stages in their development—the egg; the larva, or the caterpillar, or worm-like stage; the pupa stage, in which the insect rests from eating and growing, and undergoes a transformation into the adult or last stage. In the Grasshoppers, however, the young when they are hatched from the eggs have the same general form as that of the adult, but are wingless.

The larger number of the Grasshoppers deposit their eggs in holes in the ground, which they have excavated. Some of the long-horned species, however, deposit the eggs in fissures in the bark of trees; on the twigs and leaves; on fence boards and posts and in many peculiar places. Many of the Grasshoppers pass the winter in the egg stage. Hatching in the spring, the young Grasshoppers begin to feed and as they grow, they moult their skins a number of times each time showing a greater development of the wings until the last moulting, when the insect attains its full wings. The period between hatching and maturity covers a number of days or even weeks, during which time the young insects moult four or five times.

The Grasshoppers are among our most notable insect pests and were it not for the parasites that feed upon them, they would be so numerous each season that in many localities they would prove a veritable scourge. When present in large numbers, both the short-horned and the long-horned Grasshoppers are very destructive to vegetation, upon which they exclusively feed. "Born with one earthly desire—a voracious appetite—and with one valuable possession—a pair of strong, broad jaws, which move in and out like the blades of a pair of scissors—the little hopper soon begins to use the latter to appease the former, and for twenty-four hours a day and seven days in a week he gnaws away at the soft, green, succulent grass which surrounds him on every side."

The interesting and peculiar Grasshoppers which were photographed for our illustration were captured by Mr. Frank M. Woodruff, while on a recent collecting trip through the San Blas mountain region of Mexico. Mr. Woodruff says: "The beautifully and variously colored Grasshoppers form one of the most interesting of the natural features which confront the naturalist traveling through the San Blas region of Mexico. I greatly regret that I was not prepared nor had the time to make an extensive collection of these strange forms of insect life. For the benefit of the many lovers of nature who may take a hurried trip through a similar region without providing themselves with the usual insect-collecting paraphernalia, I will describe the method I followed in collecting and saving these insects. Curing them in the manner which I adopted seems to preserve the rich color better than the cyanide bottle or alcohol.

"The most beautiful of the specimens which my party found was the large central individual of our illustration. Like nearly all of the other species of Grasshoppers, the males of this species (*Taeniopoda picticornis*) seem to be disproportionately small. We found this Grasshopper only in the tops of the tall feathery grass growing in the smaller canyons and in the fertile portions of the adjacent desert region. They were so sluggish at this season (November) that we obtained our specimens while progressing on horseback by reaching out and picking them from the grass. I found that if they were placed in a box alive they would soon injure the wings and that the only way to preserve them uninjured was to kill them immediately. This I did by pouring whiskey—of which, you may be assured, our guides had a plentiful supply—into a tin cup and holding the Grasshoppers in it until they were dead. I then removed the viscera through a small incision in the abdomen of each insect and inserted a quantity of arsenic. The specimens were then packed, with their wings closed, quite tightly in a box. My companions were greatly amused at my antics while preparing the specimens and at the same

time guiding my horse over the rough parts of the trail.

"*Tropidolophus formosus* we found in the long grass on the plateaus and on the sunny sides of San Blas near its base. *Phrynotettix tschivavensis* was common at the entrances of the canyons in the more rocky parts of the mountain range. This species, before I was able to see it clearly, I mistook for a small toad, the warty protuberances on its flat thorax as well as its large hopping legs aiding in the deception. *Dactylotum variegatum*,

a species whose distribution reaches quite throughout the Rocky Mountain system, we found on the higher ranges of the San Blas region. This species, because of its ornamental bands of a rich red color and its blue and yellowish white markings, has been called the 'Yankee Doodle Grasshopper.' *Brachystola mexicana*, which is a large and sluggish Grasshopper, we found quite common in the sparsely grassy and rather bare portions of the lower canyons of the San Blas range."

UNCLE JARVIS TALKS ABOUT GETTING ON IN THE WORLD.

PART I.

"Come, now, you boys and girls who are studying natural history, I wonder how many different ways of moving about you can count in the animal world?"

Uncle Jarvis was always asking some out-of-the-way question that was not asked just in his way in the books.

"I know," spoke up Tom Wood, who always knew everything at sight; "there are three—walking, flying and swimming."

"O now, how about snakes, Tom, and snails and earthworms? They don't have legs or wings or fins."

"Jack has you there, my boy; but there are a good many more ways than these. What do you say, Amy?"

"Well," said Amy, thoughtfully, "I watched a measuring-worm the other day. That goes, you know, by looping itself up and then stretching itself out again at full length, only using its legs at its two ends to hold on by. Then there are the flying squirrels. They don't fly, but they skim, like flying-fish. Then the grasshoppers and hoptoads. They can walk, to be sure, but they mostly go by jumping. I can't think of any more.

O yes, I forgot the little spider that sails through the air on its web, balloon fashion."

"Now, let us count," said Uncle Jarvis. "We have animals that walk and run, birds, fishes, snakes, snails, earth-worms, measuring-worms, flying-squirrels, grasshoppers and gossamer-spiders. That makes ten ways. Can't we find more?"

"How about the nautilus?" asked a big sister.

"The chambered nautilus? Well, Dr. Holmes admits that 'poets feign' its sailing habits. I guess we'll have to give that up for a sailor's yarn. But there are at least four other ways of moving about. We shall have to go to the seashore for them."

"O, I know!" shouted two or three at once. "Jelly fish."

"Yes; who knows how they go up and down?"

"When they are down," said several promptly, "they collect air to float them, and when they want to sink they discharge it."

"That's right, and there are many water-creatures that do the same. Per-

haps they all do more or less to help along. But there are three ways left that I think of. I think I shall have to help you out with two of them. The other I'll let you puzzle over. I never saw it named in the books; and you must watch for it yourselves."

"There are clams that throw out a long arm, attach it to something stationary and then, by contracting it, drag themselves along. Then there are other bivalves that open wide their shells, then by suddenly snapping them together again eject the water, and so drive themselves along by repulsion.

"I dare say there are other ways that I don't think of just now; but these, with

the one that is a secret, will do for the present.

"Now, Tommy, my boy, there would be more sameness in the world if we had only your three ways of getting on in it. But, never mind, you were good to be eager to answer right off."

"Aren't you going to count the parasites?" asked the big sister.

"No, I think not. They are only after free board and lodging. I don't think they care anything about the ride thrown in."

"Oh, please, Uncle Jarvis, tell us the other one!" they all cried with one breath.

"No; it is the most curious of all, and I am going to make you look for it."

PART II.

"O, Uncle Jarvis," began the children one day, "we can't wait till holiday outings begin. Won't you tell us now about that funniest way of moving about?"

"Well, let me think," said the old man. But we knew it would come out after a while.

"I certainly must not forget the spider-monkey, that with hands, feet and tail swings himself along from branch to branch in the thick forests of the tropics. We may class him as the swinging type. Then there is the skating type which I quite forgot the other night, often as we have watched him. That is the water-spider. How beautifully he glides over the still pool, without wetting his legs! Why doesn't he sink? Well, his body is very light, and his feet are protected against water soaking. A big, fat spider couldn't skate."

"You didn't tell us how the snail moves," said the oldest boy. "The dirty, slimy things; I dislike them. They have no legs to creep with, and they don't snake themselves along. I watched one today, and I can't imagine what moved it."

"If you had looked where the snail touched the ground, instead of at his back," said the old man, with a mischievous twinkle, "you would have been a better naturalists. Besides, naturalists don't dislike their subjects. The next time you see a dear little snail—the shinier the better—put a piece of glass ahead of him, and when he gets onto it, turn it over

and watch the movements of the spiral rings on his under side. They will look like threads of a screw, alternately opaque and transparent, and they wind around incessantly toward his head, as if they were screwing him forward. Dirty, indeed; nothing is dirty but vermin."

"Now, how could I have forgotten," Uncle Jarvis continued, "the climbing caterpillar? Some of the larvae seem to be very restless. We see them in mid-summer swinging from the branches of the trees till they reach the ground. There is nothing there worth staying for, and they soon want to go back. Now comes a style of locomotion unlike anything we have talked about."

"Is it as queer as that one you are going to tell us about?" asked some of the listeners, mischievously.

"Don't interrupt," returned the narrator, trying to frown.

"Well, this caterpillar catches hold of the line by which he came down, drags on it with his mouth and holds the slack between his forefeet. Then he reaches up, grabs another length with his mouth, and holds it like the first. And so on till he may be seen high up, swaying about with a fuzzy bundle of his cable in front of him.

"When a boy I often watched this fellow climbing his rigging, and tired myself thinking how tired he must get. Just think! take a branch say fifteen feet from the ground, and say that our climber takes a quarter of an inch at each pull.

Then he has to lift his whole weight with his mouth more than seven hundred times before he gets back to his feeding ground!"

"I would stay there," said all the family at once.

"I can't enter his reasons," said the old philosopher, "but I have no doubt he has some."

"I guess," laughed the young lady, "it's just to worry the gardener and passers by; especially girls without sunshades."

"So now, tonight we've had the swinging and the skating and the screwing and the climbing with the mouth. That makes, I think, about fifteen ways of locomotion among the animals; and I guess you've had enough till you look up some more for yourselves."

"No, no!" they all shouted. "Tell us the funny one; tell us the funny one."

"Must I?" said Uncle Jarvis, who meant to all along. "Well, it's the little sand-crab's way. Look out for him the

next time you go to the shore. When he wants to get up the beach he watches for an incoming wave and scrabbles out of his hiding place to let it wash him up as far as it will. Before it retires he digs down into the sand, to let it pass over without moving him. Then with the next wave he repeats the operation, till he gets as high as that tide will take him, or till he is ready to go back. To do this he simply reverses the operation.

"How cute!" was the thought of all the company. But it was easy to be seen that the good leader in these nature talks had not quite finished.

"Boys—and girls, too—I don't favor making a sermon out of our subject, or else our little crab might preach as well maybe as Holmes's Nautilus. Of all our animals that 'get on' he is the one that does so by watching his opportunities. That is the best secret of 'going ahead' that I know anything about."

WILLIAM CURTIS TAYLOR.

TO THE POPPY.

Flaming like a fiery torch,
Amidst a field of waste and weed;—
Deep crimson hued like veins that bleed,
The very air thou seemst to scorch.

* * * * *

Oh Lethean flower, thou hast a power
More potent than the fragrant rose,—
Or minstrel's most entrancing lay;
Thy subtle blood leads to repose,
Oblivion's sleep; and the fleeting hour
Seems as a dream of yesterday.

—J. MAYNE BALTIMORE.



THE CHANTARELLE.

(*Cantharellus cibarius*.)

"I have witnessed whole hundred-weights of rich, wholesome diet rotting under trees; woods teeming with food, and not one hand to gather it; and this, perhaps, in the midst of a potato-blight, poverty and all manner of privations, and public prayers against imminent famine." Thus writes Dr. C. D. Badham regarding the popular feeling against fungi in Great Britain. To a large extent, his words are also applicable to people of our own country. So nutritious are some of the mushrooms that Dr. Badham has spoken of them as "pounds innumerable of extempore beefsteaks." He also speaks of "the beautiful yellow Chantarelle, that kalon kaigothon of diet, growing by the bushel, and no basket but our own to pick up a few specimens on our way."

The Chantarelle is a well-known and rather common mushroom which grows quite abundantly in woods of spruce and fir, and in wet seasons also in the forests of deciduous trees. Here it may be found growing either in clusters or singly, from June to November. The cap is usually about two to three inches in diameter, but may reach an extreme of five inches; when young, it is rounded or flat on top, but as it grows older it becomes more or less concave and occasionally folded on itself. The plant as a whole has a uniform yellow color, "suggesting the yolk of an egg," and is smooth. The gills are more like veins than are the parallel knife-like projections hanging like "thin

laminated curtains" from the undersides of the caps of many of our more familiar mushrooms. In Chantarelles they appear like "turgid veins" rather than gills, for they are irregularly branched and extend downward on the stem in an uneven manner. The stem is solid. The flesh is white and firm and has often afforded an agreeable addition to a camp menu of those who enjoy outings in the coniferous woods of Maine, where it grows in great profusion.

The taste of this mushroom when raw is "pungent and peppery," an unpleasant characteristic which disappears when it is cooked. By many, the Chantarelle is considered the most delicate and appetizing of all edible fungi, and its odor of ripe apricots is also very pleasing.

Dr. Badham gives the following method of preparing it as a food: "The best ways of dressing the Chantarelle are to stew or mince it by itself or to combine it with meat or with other fungi." Mr. W. Hamilton Gibson, in his excellent work on "Our Edible Toadstools and Mushrooms," says: "The receipts employed in Great Britain and upon the continent to the glory of the Chantarelle would almost fill a fair-sized receipt book, and some of them are quite elaborate. After a trial of a number of them the writer is assured that the simple broiling or frying in butter or oil, with proper seasoning, and serving on toast, will prove a most acceptable substitute."

ELIZABETH WILLIS WOODWORTH.

THE SWEET-SCENTED SHRUB.

(*Calycanthus praecox.*)

This sweet-scented shrub is a winter-bloomer. The warm days that we usually have in the South about Christmas time brings out the little yellow blossoms in profusion.

There are but few other out-door flowers in bloom at this season, except the violet.

The blossoms of the *Calycanthus*, clustering in pairs all along the branch, are pale yellow, sessile and rosaceous in

form, filling the garden throughout December with a delicate fragrance.

The leaves, which are large, generally fall off before a single bud opens, but the blossom is so pretty and fragrant that we forget the somewhat awkward stems.

Sometimes a sleet finds our shrub in full bloom, leaving it an exquisite picture, every blossom in a crystal casing. But we are glad when the sun lets out the imprisoned perfume.

JESSIE M. COOK.

OCTOBER.

Golden rod and thistle down
In the fields and all around,
And a fragrance in the air,
And the fairy barks a-sailing,
And the beauty everywhere
Hill and wood and valley vailing,
Like an angel's soft caress,
Fills the heart with loveliness.
And the present is a vision,
And the past is but a dream;
And the deep soul laughs at wisdom
That would have things somber seem.
Only joy the days contain,
When life leads this happy round;
All the world sings one refrain,
Golden rod and thistle down.

—STANFORD CONANT.

The beautiful is as useful as the useful.—*Victor Hugo.*

BIRDS AND NATURE

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EDITED BY WILLIAM KERR HIGLEY

ILLUSTRATED BY COLOR PHOTOGRAPHY



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BIRDS AND NATURE.

ILLUSTRATED BY COLOR PHOTOGRAPHY.

VOL. XIV

NOVEMBER, 1903.

No. 4

SHELTER.

November! in thy sombre noons I pace
My vine-stripped porches shadowless and cold,
And watch far-tossing trees whose leafy gold
Rusts in dim heaps, or flies through windy space.
The lofty pendulous elms, in naked grace
Droop, arabesqued like fountains in the wold;
The maple's level arms stretch stark and bold,
And meadow oaks moan in their wide lone place.
But by the garden wall, the tender peach
Flutters gay tags of red and green; the plum
Keeps shreds where russet golds with purples pleach;
Crisp curls of grey bedeck the quince-bush numb,
And where we plucked the pear with easy reach,
Are mottled wine-hued leaves, where low winds hum.
ELIZA WOODWORTH.

THE PINE SISKIN.

(*Spinus pinus.*)

Dr. C. Hart Merriam has said of the Pine Siskin: "Few birds are more erratic in their habits than the Siskin or Pine Linnet. Occurring today, perhaps, in such numbers that one may soon tire of shooting them, they are gone on the morrow, and years may elapse before one sees them again." This seems to be the experience of nearly all observers. Its appearance in a given locality is always irregular and uncertain.

The Pine Siskin is graced with a number of appropriate common names. Some of these are the American Siskin, Pine Finch and Pine Goldfinch. The last name is especially significant, for the Pine Siskin resembles its sister species—the American goldfinch—in many of its characteristics. Its distribution is extensive, as its range covers North America in general, breeding chiefly in the British provinces, but also in the Rocky Mountain and Sierra Nevada ranges of the United States. It is also said to nest in the mountains of Arizona and Mexico. Though not a common occurrence, its nests are also found along the northern border of the United States. At the approach of winter, the Pine Siskin migrates southward, in a leisurely manner, seemingly only as far as it is obliged to go to obtain food and to escape the severest weather. It is the variation in the abundance of food that causes the erratic movements of this species and its sudden appearance in localities where it was before unknown.

In the eastern United States the observer is seldom rewarded with the pleasing love-song of this amiable little bird, for it is not until it has retired to the coniferous woods of the far north, or in the high mountains, that its voice is tuned by love. In Washington and Oregon, "as soon as the first dandelions are blown

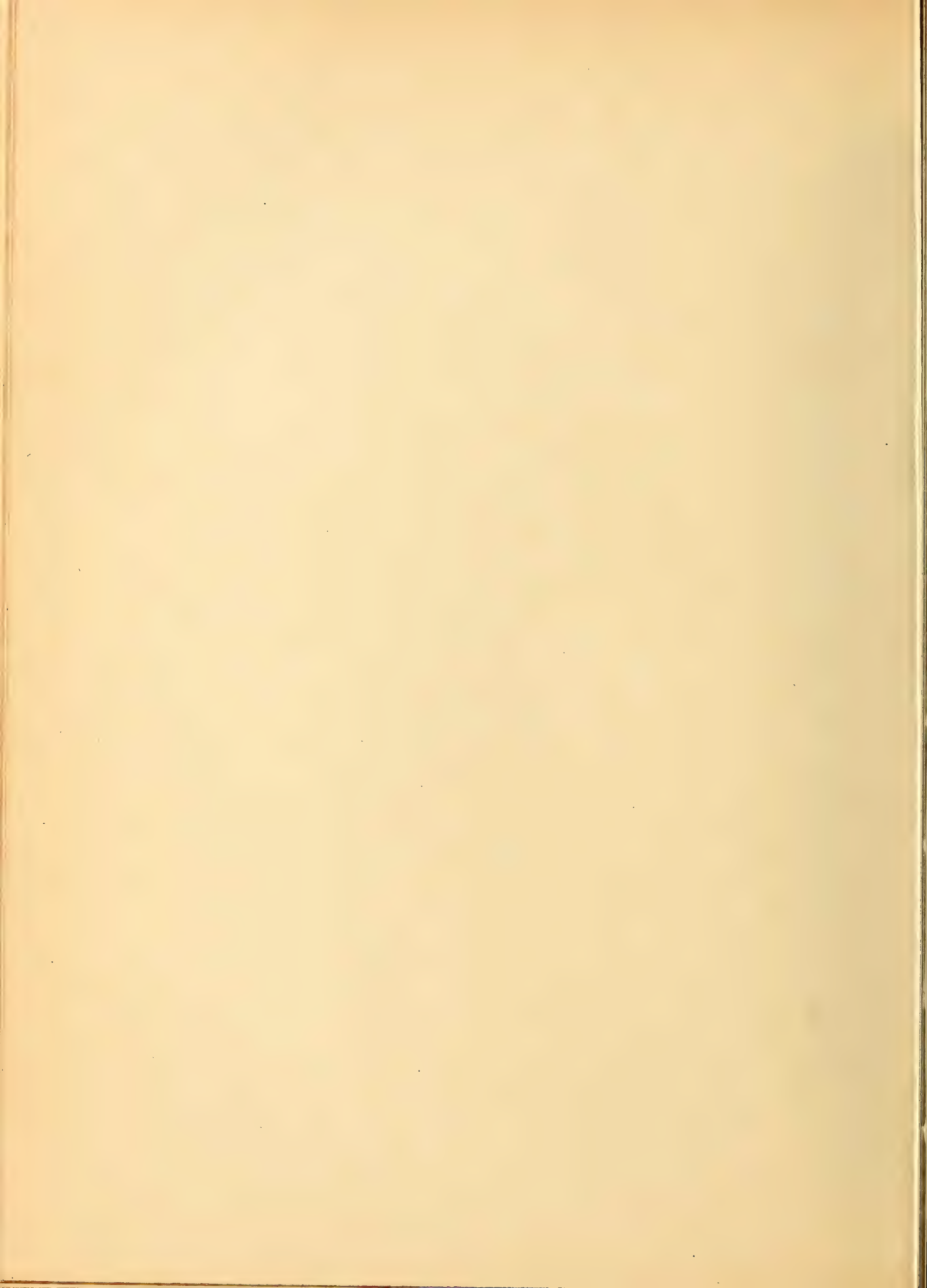
and the green grass is flecked with the winged seeds, you will see flocks of little grayish-brown birds not unlike sparrows in their color, but with touches of light yellow on wings, backs and tail, eagerly devouring these fugitive morsels. They may be seen, too, upon the evergreen trees, singing in chorus the softest, sweetest song imaginable." There some of the Siskins have learned that man may be trusted and build their nests in trees in his vicinity. Its song resembles that of the wild canary. In its flights and methods of feeding it resembles the American goldfinch. "As it flies downward from the top of the spruce tree to feed upon the brown seeds still clinging to the pigweed and goldenrod stalks sticking out above the snow by the roadside, it dips and floats through the air like its charming little cousin." In the spring, large flocks of Pine Siskins may frequently be seen, in certain localities, feeding upon the tender buds of trees and they will also visit the trees and bushes of our lawns, for they are by no means shy. The sitting bird is not easily flushed from the nest; sticks and stones thrown at her will not drive her from it, and only the very near approach of the intruder will cause her to fly away. The nests are usually placed quite a distance from the ground, and quite well out on the branches of coniferous trees. Here they are protected by the dense foliage and are reached only with difficulty. It may be said that in general the nest is a frail structure and is built of those materials most easily obtainable. Mr. Charles W. Bowles says that they are composed "externally of twigs, cedar bark, several kinds of moss, dead grass, fur and hair; plant down and sometimes fine roots; internally of fine moss and hair or fur from cats, rabbits, cows and horses." The lin-



FROM COL. CHI. ACAD. SCIENCES.

PINE SISKIN.
(*Spinus pinus*).
Life-size.

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AMERICAN COLORTYPE CO., CHI. & N. Y.



ing is much more compact than the outer wall and not infrequently contains pieces of string and thread, woven in with the other materials.

The Pine Siskin is said to be easily tamed and that it makes a choice cage-bird. Though not as brightly colored as the goldfinch, the Siskin deserves as

much attention. "They sing on the wing in the manner of the goldfinch. Their notes are clear, lively and mellow, like as in that bird, but still sufficiently distinct; they fly out in the same graceful, deep curves, emitting also the common call note at every effort to proceed."

HOW WE SAW THE BIRDS.

I.

To see birds aright the student should array himself in nature's own colors, take the best pair of opera glasses he can get, and, with calmness and patience, seek the objects of his devotion in the still fastnesses of the woods or in the secluded spots of a large city park. Obviously two prattling children, be they one's own and ever so sweet, are not helpful companions; but it sometimes happens that where parents go children must go likewise, and it is wise to keep in mind the gains coincident with the losses, the compensation children always furnish for forfeitures they occasion.

One day two bird lovers were tramping over the woods with their two-year-old son and their four-year-old daughter, infants yet the staunchest heroes. The ground was very rough, full of invisible holes, into which the wind had blown the lost foliage of past years. As they stumbled along the younger child fell. His sister consoled him and said, "these holes are waste baskets for the leaves." That little remark revived the family and the children entertained themselves a good part of the morning tumbling into waste-baskets and scrambling out again.

Meantime their elders took turns sitting soberly under a thicket watching the movements of two wood thrushes, beautiful, well-bred birds, who, during the hour and a half they were observed,

found their food quietly on the ground, stole away softly when they were disturbed and returned calmly to resume their meal. Not a hasty movement did they make, not a note did they utter, though the invasion of their realm was doubtless an infrequent occurrence. They were not nervous or oversuspicious, but were so serene that the observers longed to hear their song, so certain it seemed that the strain would be placid and pure.

When the children were exhausted with their efforts at getting out of "waste-baskets" they sat down upon a hillock, lolled in each other's arms and pretended they were taking naps. Above their heads was an old elm, the top of which was lifeless and bare. While on duty guarding the children the mother kept her eyes fixed upon those naked boughs, remembering Thoreau's promise that to him who sat patiently watching all the birds would sooner or later appear. Perhaps Thoreau had not taken into account the noises of the children. Perhaps by the word later he meant to save himself an argument, since no one can say what might happen should he continue waiting. Be that as it may, the mother was rewarded.

Possibly the birds wished to see what so much merriment was about, for children are always merry when they play at napping. But why should a winged creature fear? Could they not escape from any petty human, who must needs remain

forever beneath them? A song sparrow came first and sang over and over his happy melody. His perch was soon taken by a pewee, and later a kingbird chose that exalted spot for his throne. Leafless branches are good observation points for the flycatchers and are therefore especially popular with that class of birds. This kingbird kept his perch a very long time. Apparently he was dozing, though it is likely he had one eye open for any insect which happened along his way. Once he dropped a foot or two, and then, by an awkward movement, got back to his place.

"Did you see that bird fall?" asked the father, just emerging from the bushes and not realizing at the instant that the bird was simply pursuing an insect.

"Yes," said the mother, "maybe he will do it again," and almost immediately the performance was repeated.

"Oh," said the little girl, very seriously, catching the conversation and witnessing the bird's action, "Oh, I do believe it has turned into a habit."

II.

Although it was May-day birds were none too plentiful along by the little lake where the bird-students rambled. The sapsuckers, the brown creepers, the kinglets, the hairy woodpeckers were all gone. The nuthatch remained. Robins, chipping sparrows, song sparrows and bluebirds have been seen and heard, but in the open space by the lake there was silence. One lone blackbird was walking along close by the water, very deliberately and patiently, as if he had made up his mind to make a complete circuit of the lake just to see what such perambulations were like. The children were collecting pebbles and throwing them into the water—a sport of which they never wearied—while their father had wandered to a little distance and was standing under a large tree. Suddenly there was a great noise and from the other side of the lake there came four big birds screaming with all their might. Both parents looked and wondered! The mother frankly admits that she thought they were eagles and that she did not expect them to pause this side of the Adirondacks, when behold they came to a pause in the tree just over father's head.

With profound self-sacrifice the mother determined to remain where she was and keep the children, that her companion might behold the wonder undisturbed. With equal sacrifice and with unbounded enthusiasm the father beckoned her to come. The children were completely absorbed in throwing stones—moreover, they were children not accustomed to instantaneous obedience; but so impressed were they with the importance of the occasion that when their mother said "Come" they immediately gave her their hands. There was no need of haste. The screaming eagles were nothing more nor less than golden-winged woodpeckers, too much excited to observe their observers.

To the father, who had never before seen a flicker, the sight was in no sense a disappointment, though the birds had given themselves a most notable introduction. There was not a mark on their many-colored bodies which they did not exhibit, the golden-lined wings and tail, the red head-dress, the black crescent breast ornament, the beautiful brown wings, the polka dots on the breast, and the white spots on the lower back! And then that remarkable beak! They were in a high state, making all sorts of noises, and jumping from tree trunk to branch and back again.

Presently one of them flew to the ground, whither the others seemed to have an intention of following, but they changed their course and gave a sudden cry of alarm. The bird which was on the ground perceived the danger and jumped to a tree trunk, where he remained, casting nervous glances over his shoulder at a big field rat and uttering a sharp cry, "Wicker, wicker, wicker!"

"He is telling us his name," said the mother. "flicker, flicker."

"But we already know it!" replied the four-year-old, resenting the information she had received from picture books.

The boy neither knew nor cared about the bird's name for his father was chasing the rat, not having outgrown his boyhood, and in his footsteps the son was following. The child returned warm with pursuit and excitement and while yet panting for breath propounded a question—"Can't a rat climb a tree?" This

interrogative was, for excellent reasons, not definitely answered.

III.

For several days succeeding the last outing the children entertained themselves playing they were a rat and a flicker, the different roles being taken alternately by the two children. Henceforth the daughter, albeit but four years old, had a real interest in the flicker. Six weeks later her father held her on his shoulder that she might witness the feeding of a young golden-wing by its parent. She took the matter most seriously, obviously afraid that the baby bird was being very badly treated, but when her father explained that the parent was simply pumping food out of his own crop into the infant's the child counted it a great joke and has never tired telling it to her small brother.

During the first week of May the bird students spent a great deal of time and energy following the tiny yellow warblers who flitted about so constantly as to be rather perplexing. The birds have since become so very common that it seems most laughable to reflect upon those days when the patience of the enthusiasts was so greatly tried. It must be confessed, however, that the nest of these birds was sought a long time before it was found; and would have been overlooked even then but for the perturbation of the parent birds, who objected most decidedly to the passage of beast, bird or man by a certain group of lilac bushes. All the poor little things could do when a monster man actually approached their dwelling was to keep up an incessant cry right in his ear, as if begging him to have mercy. Indeed they were so close as to be several times within reach of his arm, as he stood upon tiptoe and peered in upon a tiny bird—their only child. The baby, so small and helpless, was already clad in a coat of sparrow-like feathers; but the observer stayed not to look upon him, being anxious to allay the fears of the parents.

Two days later when a call was made the fledgling was alone, but when a strange human face was presented at the nest, he gave a leap and fell to the ground. It was a moment of excitement

for the babies, feathered baby and human babies, and indeed for the parents, who quickly put the bold birdie back where he belonged. He did not stay there, however, but asserted his independence by perching upon the side of the nest, where, strange to say, he remained silent instead of wailing lustily and making his innocent assailants feel like kidnapers.

Four days later, when the baby was not more than ten days old, the nest was deserted. He was quite a youth to go out into the world, but his spirit was noble and it is to be hoped he met with no harm. The children proudly carried the nest home in a small box. It is a soft structure, measuring less than two inches in diameter. The outside is of bark fibers, while the lining is hair and a sort of wool, coarser than that which covers the horse-chestnut buds when they open. The children puzzled themselves about the little home and the birds who had discarded it. The elder child wanted to know where the little baby was when its papa and mamma were building that nest.

IV.

The dandelion season was passing and there was a feeling of guilty relief among mothers who cherish the beauty of these blossoms, but who do not like the stains they leave upon the hands and frocks of little people. "The field of the cloth of gold" was hardly missed, the dandelions being so promptly replaced by the sweet-scented white clovers and the buttercups.

During the last week in May these flowers appeared in the haunts of the bird-lovers, and the children were happily engaged picking them. The extra freedom this gave their parents led to the discovery of the rose-breasted grossbeak, the brown thrasher and the Baltimore oriole, a group notable for song and for beauty. The grossbeak's notes were liquid melody, very sweet and pleasing, but not so clear, so exhilarating, so gladdening as the thrasher's, nor so bold as the oriole's. The mother enjoyed translating the oriole's notes into words, but the father thought this pure sentiment—not to say nonsense. He agreed that one oriole seemed to say: "I love you, dear, a little," but denied that it was in answer to the words of a proud male: "If you

want to see a pretty bird, look here." The children, however, had abundance of faith and could always hear any set of words for which they were listening.

They enjoyed their father's story relating how a catbird had led him with a beautiful song way down among some bushes in the belief that he was about to find a bobolink and had then made sport of him by saying, "Mew, mew!" The boy showed his appreciation of the tale by saying, "tell it again," while the little girl made the very wise observation: "Birds have a great many habits."

The two-year-old, albeit he had gone on many excursions to woods and fields, had never really seen any bird of brilliant plumage. Red-headed woodpeckers had become very common and not at all shy. One day the boy was repeatedly lifted to see a woodpecker flattened against a tree trunk; but either his sight or his patience was not sufficient, perhaps he saw the object but did not know what it was. At any rate he shortly informed his elders that he did not have time to

see a red-headed woodpecker. He was not aware of the real beauty of birds till one day when, by good fortune, a flock of scarlet tanagers presented themselves. Not to see them was impossible, so wonderfully clear was their scarlet and black plumage in the sunshine as they flitted about from tree to tree and even to the ground. The sight was thrilling to the parents, who expected to see the children in an ecstasy; but not so, those calm philosophers! The daughter was pleased but not surprised. To her childish mind—unaccustomed to disappointments—a bird which was pictured in a book was to be expected in a tree. A flock of parrots or birds of Paradise would have surprised her no more. The boy was very sober and kept his eyes fixed constantly upon the objects of his wonder. But it was not emotion which held him spell-bound, and when the birds had flown he betrayed his whole mental state in the question: "How did they get that way?"

MRS. CHARLES NORMAN.

HEAVENLY VISITANTS.

So blue the sky, for boisterously
Was heard at work last night,
The merry wind, Old Nature's broom,
Sweeping the clouds from sight.
And can it be those scraps of blue
On yonder naked tree,
Were swept to earth, yet still of heaven
They sing their "pu-er-ly?"
That bits of snow clouds, from the pan
So heaped with clouds fell through—
Were given wings, and missing heaven,
Straight to the earth they flew?

Dear blue-birds, snow-birds, passing strange
To meet you thus together,
Spring's harbinger with winter's linked
In crisp November weather!
Two visitants from out of heaven,
Perhaps celestial birth
Has rendered sweet to souls like yours
Chance meetings upon earth.

BESSIE ANDREWS DANA.



FROM COL. CHI. ACAD. SCIENCES.

DOUBLE-CRESTED CORMORANT.
(*Phalacrocorax dilophus*).
½ Life-size.

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THE DOUBLE-CRESTED CORMORANT.

(*Phalacrocorax dilophus.*)

The Double-crested Cormorant, a pair of which is shown in our illustration with their nest and eggs, is the common Cormorant of the eastern and middle United States. In that region, however, it is rarely seen excepting during its migrations, or as a winter visitant in the southern states as far north as southern Illinois and Virginia. In exceptional seasons it has, however, been known to pass the winter as far north as the Bay of Fundy. It nests from the states of Dakota and Minnesota and the region of the Great Lakes northward.

The habits of the Double-crested species are similar to those of the other Cormorants. Fish form its principle article of food. These it obtains by diving and pursuing them under water. It is a strong and rapid swimmer, as well as an expert diver. To escape an enemy it will remain under water for a long period and swim a considerable distance. In migrating, the birds form in a long, narrow line and fly very high, their flight resembling that of the larger ducks.

Though they fly rapidly, there is a constant and labored flapping of the wings, and if they sail, it is only for a short distance.

The Double-crested Cormorant is somewhat erratic in its choice of a nesting site. Some pairs seem to prefer the vicinity of inland waters—large lakes or rivers—while other pairs only breed on rocky islands in the sea. The nest may be built in a crevice, on a ledge of a sea-washed cliff or it may be placed in a secluded place on the beach of a lake. Sometimes it is constructed in a low bush and not infrequently in a tree on a river bank. The materials used are coarse sticks, twigs and grass. When on the sea shore the nest is frequently built entirely of marine herbage.

The Double-crested Cormorants "may often be seen sitting on snags or on rocks; but they are so shy they cannot be approached in a boat, although in flying they often pass very near the hunter, and thus afford an opportunity for a shot. In winter they associate in small numbers with the more marine species."

THE CARDINAL.

No slumber songster he, with vesper warblings low
But bold his every note, and full and strong;
In his clear-ringing pledge, hear him unstop the flow,
Then gurgle forth the red wine of his song!

—MARY MCGOWAN.

BUN.

Bun was a Southerner and appropriately wore the grey. We first met him in a Charleston, South Carolina, residence, where he had been brought by the boys of the family. They, however, were the only appreciative members of the household, so when I recklessly expressed a wish to take Bun north with me, the proposal was hailed with enthusiasm, and upon arriving at the dock on the day of departure I found him there before me, peering anxiously through the bars of his cage.

I received my charge with mingled feelings of joy and foreboding; a three days' voyage was before me, and I am not a good sailor. My worst fears were realized, for Bun speedily gnawed his way out of his hastily made box, and was found dancing over the berths in my stateroom, chuckling at his escape. Being recaptured and his cage repaired, the incident was repeated with variations, until he was finally secured in a tight wooden box.

By this time I was thoroughly demoralized. "Then descended on the Atlantic the gigantic stormwind of the Equinox," and my sorrows increased, until I assured the stewardess with the resignation of despair that I should never live to see land. Poor Bun was utterly neglected, though from time to time little squeaks and moans were heard, as the boat gave a worse lurch than usual. When we finally came to ourselves in the harbor, I was overjoyed to find him not at all injured, except temporarily as regarded his disposition.

Upon reaching home, urged by the disapprobation of my family, I made a vain attempt to cage Bun, but his despair was too pitiful. In a few days we were the best of companions; he climbed upon my shoulder whenever he saw me, running up and down and around my dress as though I were a friendly tree.

Every evening he curled up under my pillow to sleep, to be subsequently dislodged, and placed in a bag of cotton in the closet. One cold night, however, I heard him scrambling about and set the

door ajar; immediately there was a "tap tap" of tiny feet, a rustle among the blankets, a soft little bunch of fur at the foot of the bed, and Bun had found his nest for the winter. Contrary to my expectations, he proved a late riser; when he waked first, he would creep out, stretch himself with a formidable yawn, and proceed to hang by his feet from the headboard and nibble my fingers held up to him, delighting to pinch harder and harder, though he never forgot himself so far as to bite me.

He was seldom quiet, unless asleep. Sometimes, by rubbing his little body or hands, I could coax him to be still, when he would drop his head on one side, close his eyes, and assume such an idiotic expression as generally reduced me to helpless mirth—whereupon he would blink at me reproachfully.

His most disastrous adventure occurred soon after our acquaintance began. A great clatter was heard from the kitchen, where Bun was found dancing up and down, raving in squirrel language, while held prisoner by his beautiful bushy tail, which, pushed through the bars of a chair, was attached to a sheet of "sticky fly paper" that he had whisked up from somewhere and flattened against the back. It required some dexterity to separate tail and paper, the task not being rendered easier by our tendency to unseemly mirth. Bun's feelings were sorely hurt, and his tail never recovered its full luxuriance, though it remained his pet vanity, and he spent much time in brushing it.

His chief vice was curiosity; every corner was explored; not a package but his fingers and sharp little teeth were busy about it. Nuts, candy, biscuit or cakes were appropriated at once.

One day he discovered the use and construction of pillows, and was found curled up in the center of one, the room full of flying feathers. He also attempted the investigation of a treasured armchair, left, by a friend, for safe-keeping. My admonitions only served to arouse his obstinacy, and I was obliged to fol-

low Solomon's advice and use the rod. I expected he would bite me, but he developed the unexpected grace of forbearance and contented himself with giving his opinion of my treatment in forcible language.

A pencil was not safe with him for a moment. Left to his own devices he would split off the wood in strips, laying out the lead intact. He often dangled one before me as a challenge to a game of hide and seek; seizing it in his mouth he would run to cover under chairs and tables, never dropping it until the game was lost, when he would frisk away to some high place, where he would chitter and giggle with sinful glee.

When he became annoying I frequently gave him a nut, for he was under the imperative necessity of concealing it at once, whatever other business he might have on hand. It generally took him some time to decide upon the proper place; under the chair cushion, the edge of the carpet; in the fur rug; or occasionally in my hair. When quite satisfied, he would tuck it in, pat it down with both hands, look around to see that all was safe, and dart away; whereupon I would basely dislodge and hand it to him again, so keeping him busy indefinitely.

When spring came, it brought another change of residence, which Bun accepted with disapproval, but resignation. When taken downstairs to be introduced he slipped away, and was found making himself comfortable in my room, to which he unerringly found his way up a flight of stairs and through strange rooms and passages.

Upon further acquaintance he attached himself to the young man of the family, unwitting that that individual was a mighty hunter, quite certain to "make game" of him if they met at opposite ends of a gun in autumn.

The gentleman in question, an inveterate smoker, one day held out his pipe to Bun. To our surprise that depraved squirrel plunged his hand in to the bowl, seized as large a quantity of tobacco as he could secure, promptly devoured it, and called for more.

As the warm weather approached,

Bun often sat with folded hands, gazing out at the not far distant woods—a pathetic little figure. The time was coming when the windows must be kept open, and it would be necessary to cage him, set him free altogether, or give him the run of the premises. Several evil-minded cats and dogs made the latter alternative undesirable. On the other hand, if left alone, would he be able to care for himself? Would he not miss his home and feel himself a lost and forsaken squirrel? After much debate, I decided that he would probably echo Patrick Henry's sentiments.

The result was that Easter Sunday afternoon a melancholy procession left the house, bearing Bun, again in his box, to a sunny hillside, where the leaves come first in the spring, and nuts fall thick in the autumn. We also carried a quantity of those delicacies with which he was expected to begin housekeeping.

"When the box was opened" there was no question as to Bun's views. One flash, and our house-bred, domesticated pet was in the top of the tallest tree in sight. His instinct was true, though he was taken to the house from the nest.

At first he seemed to fear recapture, but gradually descended, keeping on the opposite side of the trunk from us. I lingered after the others had gone. Bun came to the foot of the tree and began digging in the fresh earth, apparently unconscious of my presence; but as I began to walk slowly away, he followed, running from bush to bush, until I secretly hoped he might follow me home. At the edge of the wood he came and climbed upon my dress, but when I reached out my hand he scampered away into the brush. That was apparently his farewell, for he paid no more attention to me, and I took my lonely way home through a singularly unsteady section of country.

In spite of many visits to that hillside, I never saw him again. His face will remain unknown, but I still have a tender memory of my merry companion; and when the hazy autumn days come, and hunters haunt the woods, I never hear the sound of their guns without a pang.

ELIZABETH MILES DERRICKSON.

THE TRAILL'S FLYCATCHER.

(*Empidonax traillii*.)

"A few species loiter and dally among the foliage in the first weeks of spring, as though loath to assume the responsibility of rearing a family; they flit in and out among the leaves, uttering soft notes of love and quiet content, seemingly with no cares and no thought of home-building. In this list we find Traill's Flycatcher—a small bird with bright olive back and whitish under parts, with dusky wings, crossed by two grayish bars." These words of Mr. Silloway express some of the traits in the character of this lively, retiring and quiet little bird. Indeed, so quiet is it that it may be abundant without attracting the attention of any one excepting a close observer.

Students of bird life have recognized two varieties of Traill's Flycatcher, one an Eastern form and the other a Western form, each passing into the territory of the other. So similar are their characteristics and so nearly alike are their habits that the differences seem much to slight to warrant their separation and many Ornithologists place both under the name *Empidonax traillii*. Considering the two birds, and the intermediate forms between them, as simply variations of one species, we may give its habitat as follows: North America in general, breeding from Arizona, Missouri, Illinois, Northern New York and New England to Alaska and New Brunswick, and visiting Mexico and Central America during the winter.

Major Charles Bendire, writing of the Western form of this Flycatcher, which is called the Little Flycatcher, says that according to his observations in the West it "is not nearly as shy a bird as its Eastern representative, and while on the whole it also probably prefers moist situations, like Traill's Flycatcher, it seems to be equally as well satisfied in rather dry

country, where the other is apparently never found. One of their common call notes sounds like *queet-queet*, and the alarm note uttered when the nest is approached is something like that of Traill's Flycatcher, *whuish-whuish*."

Traill's Flycatcher is partial to the willow and alder thickets bordering streams or swampy places, yet it may also be found in the vicinity of gardens, orchards, pastures and parks. Exhibiting great nervous energy, they seldom remain in one place for any length of time and are constantly flying from one perch to another, catching insects on the way. In the more eastern portions of the range, Traill's Flycatcher is usually a very shy bird and frequents only alder swamps and deep meadows. There it can easily hide among the foliage where it is, perhaps, more often heard than seen. A note that it frequently utters during the breeding season, as it rests upon a twig, sounds like *pree-pe-deer*, and another has been likened to the syllables *wit-tip-che*, *wit-ti-go*. "The alarm note is something like *whuish*, *whuish*, uttered quickly and emphatically." In fact it is a pugnacious and somewhat quarrelsome bird, "making up in courage and determination what it lacks in size." Writing of the Western form, Major Bendire says: "I have seen one drive a red-shouldered blackbird away from the vicinity of its nest, pitching down on it angrily and pecking at its head and neck in the manner of its larger relatives when chasing crows and hawks."

The home of this trim little Flycatcher is well constructed, and is usually placed in the crotch of a bush or a small tree and not very far from the ground. Sometimes the nest is placed on a horizontal branch, provided there are several smaller branches arising from it. The materials vary according to the locality.



The walls of the nest are usually made of coarse grasses, vegetable fibres, shreds of fibrous bark and in some instances pine needles are added. Occasionally a nest is found that is completely covered with plant down woven on the outside of the wall. The nest is lined with fine grasses, fine vegetable fibres, plant down and sometimes animal hair.

"The first two or three weeks of their summer residence are spent by these Fly-catchers among the bushes or along the hedges, sporting with their companions and devoting their days to quiet courtship and the delights of love, enjoying a period corresponding to the honeymoon of more rational beings."

THE DISOBEDIENT TOAD.

Mama Toad lived under the geranium hedge with her little family. They were very happy in their lovely green and red home. All day the little horned toads played about in the bright California sunshine. Flowers bloomed about them the year round, golden oranges hung upon the trees above their heads, and the air was full of perfume.

No one disturbed the little toads. The hummingbirds and butterflies flitting about among the flowers were their friends. So was Fritzie, the little dog who lived in the house near by. It was great fun for the little toads to frisk about the dog, and when he ran after them to hide under the hedge.

Then the little girl came. The toads peeped anxiously out at her with their bead-like eyes before they ventured forth. Then the oldest and bravest of them ran close to her.

"Oh, mama!" cried the little girl, "just see those dear 'ittle things wif points around their heads."

After that she was their friend, and they loved to play about her.

Soon after that they heard a noise, and peeping out saw a great creature with something in his hand with which he made a loud sound, which caused them to scamper back to their hiding-place and tell their mother about it. The mother looked out, then gathering her family about her, said:

"My children, the long-legged creature that you see there is called a boy. He makes the most terrible noises not

only by screaming, but also with a tin horn which he puts in his mouth. He is the enemy of all toads, therefore beware of him. Keep under the hedge and you will be safe."

The oldest of the toads often peeped out at the boy and saw him romping with the girl and the dog.

"I believe my mother is mistaken," said he. "Grown people don't know everything. That creature looks kind. He never hurts the dog, and besides, it is getting very dull here under the hedge." At that he ran out, but hastened back, for the boy ran after him, crying, "Oh, what a beau-ti-ful horned toad!"

Pleased at the compliment, toadie proudly raised his head and ventured forth the next day. This time the boy did not seem to see him. Growing bolder and bolder each day and forgetting his mother's warning, the silly toad approached the boy nearer and nearer. At last, longing for admiration, he ran over the boy's foot. With one spring the boy was upon him, had him in his hand, and alas! in spite of toadie's wiggling, he put him in a box with cotton and chloroform which he had been keeping for the purpose. The poor little toad soon fell into a deep sleep from which he never awakened.

Down under the hedge the mother waited in vain for her silly child.

If you will go to that boy's room you will see the little horned toad stuffed and hanging on the wall, a warning to all toads who disobey their mother.

HENRIETTA LEE COULLING.

SOME DOGS THAT I HAVE KNOWN.

FRANKIE.

Frankie was a great black Newfoundland dog, the constant companion of two little girls to whom he belonged. He shared in all their plays and was so intelligent that they declared he understood what they said to him.

One day a little cousin came to see them, and the three children and the dog had a grand romp. At length the little girls decided to play "School Exhibition" and chose the front portico for a platform. Each of the two elder ones took her turn in ascending "the platform" and reciting a piece.

Then they announced:

"We will now have a recitation by Miss Mabel C——."

Mabel went up the steps with as much dignity as she could assume, and Frankie followed. She tried to drive him away, but he persisted in staying. Finally one of the girls announced:

"We will now have a dialogue by Mabel and Frankie."

Mabel took her position, and Frankie acted as if he understood, for he sat up quite straight beside her, and put on his most intelligent look. Mabel was very small and her stock of recitations was limited, so she began, with appropriate gestures:

"Old Mother Hubbard
Went to the cupboard
To get her poor dog a bone.
But when she got there
The cupboard was bare,
And so the po-o-o-or dog had none."

This closing line was too much for Frankie, who threw back his head and howled "Oo-oo-oo-oo-oo" most dismally. The small audience clapped loudly, and the listening grown people indoors added their laughter to the applause over this comical dialogue.

BONNIE.

Bonnie was a brown and yellow shepherd dog belonging to a young farmer in Illinois. He had proved himself very useful as a watch-dog and was some-

times used to help drive up the stock from the pasture.

One night there was a heavy rain and wind-storm. Nothing was seen or heard of Bonnie, although usually his frequent bark announced that he was on guard.

The next morning when the farmer went out to the barnyard, he found that the wind had blown open one of the big barn doors. In this open door lay Bonnie, and outside was huddled a large drove of sheep that looked with hungry eyes toward the grain bins and hay in which they might be reveling, but for the dog.

At the coming of the master Bonnie got up, whined and stretched himself, looking up intelligently, as if to say:

"I am very glad to see you. Do you see what happened last night? I knew you did not want those meddlesome sheep in there, so I stayed here and kept them out. I am pretty stiff and tired for it was cold here, and the boards were a hard bed. And now I'd like a pat on my head, and something extra good for my breakfast."

He did not say it with his voice, but his eyes spoke so plainly that his master understood; and the faithful dog received both the pat and the good breakfast.

QUEEN VICTORIA.

When I was but a little girl my father moved from the city to a small farm that he had bought. The former owner of the farm was an aged minister, who was a personal friend of my father. As he was leaving the farm, he said:

"I will have to leave my dog behind me, as I am going too far away to take her with me. She is quite old, and has been a great pet for several years; so I trust you will be kind to her as long as she lives. She is an English coach dog, and her name is Queen Victoria."

Of course father promised to care for the faithful old dog, while we children were delighted over the prospect of having her for a pet.

It was not long until she attached herself to me, and followed me wherever I went. She was my companion in the long, solitary walks which I had to take through the dense woods to the store and postoffice, which were three miles away from our home. There was a genuine comfort in taking her with me, especially when the afternoons sank into twilight and the bats came out of their hiding places among the trees to circle about my pathway, while screech-owls and whip-poor-wills sent forth their lonely and plaintive calls from the darkness of the forest depths.

One day as I sat reading, with Vic lying upon the floor beside my low chair, I stroked her head while I read, as was often my custom. Suddenly the poor old dog rolled over in a dreadful spasm. My sisters and I fled from the room in terror. As soon as the fit was over, mother drove the dog from the house.

The animal went out and hid under a corn-crib, where she remained for several days. During this time of her sickness a strange thing happened. As

Queen Victoria was of a fine breed of dogs, many of the neighbors had secured her puppies, which had grown to be big dogs. How these dogs learned that their mother was ill I do not know; but I do know that within a day or two after she became sick they began to come to see her. Some of these dogs belonged to near neighbors, but others were entirely strange to us and we never saw them at any other time. Two, that belonged to near neighbors, were particularly attentive to her, coming frequently and bringing bones and other things for her to eat. We children were much affected by this evidence of kindness and even shed tears as we saw them bring her food which she could not eat.

Father was away from home when Vic was taken sick. As soon as he returned and learned of her condition he sent for a neighbor to come and shoot her, as he feared she might go mad.

For a day or two after this the dogs continued to come to see her, but when they found that she was dead they went away, never to return.

MARY McCRAE CULTER.

THE OLD AUTUMN STORY.

Frost-touched maples hedge the highways;
Yellow, red and crimson tints
Glow along the bosky byways
Where the autumn sunlight glints.

Bleak and bare, the locusts ragged,
Standing stark beside the lane,
Shed from knotty, gnarled and scragged
Limbs their summer vestments plain.

Up the browning hillsides scramble
Crowds of shouting village boys,
Through the brush and through the bramble,
Eager for nut harvest joys.

Squirrels are scampering 'mongst the falling
Chestnut burrs and crispy leaves;
Everywhere is nature calling,
O'er us steals the spell she weaves.

All the hills aflame with glory,
All the valleys hung with haze.
'Tis the year's old autumn story,
Tuning hearts to mellow days.

FRANK FARRINGTON.

THE KINGFISHER'S NEST.

Who is it that does not admire a pretty collection of bird's eggs? I am decidedly against collecting them for mercantile purposes; but think that a collection of one or two sets of each kind is an indispensable aid to the proper study of birds and their habits.

It was in the spring of 1899, while on one of my collecting outings, that I happened to take a short path down a railroad track towards a patch of woods that had been on my visiting list for some time. As I was passing through a deep cut the banks of which were about thirty feet high and very steep, I noticed a small round hole near the top of the left hand bank, and while looking at it a Kingfisher came out and flew off towards the river, about two miles distant.

No collector ever overlooks the opportunity to make a desirable addition to his collection; so I determined to secure that nest if possible. But how to get it was the question, for the nest was only two or three feet from the top, the bank was too steep to climb and should I have gone around to the top I could not have found the nest. I was also four miles from town, therefore could get no tools to assist in climbing the bank, but I was determined to get that nest, so I went to work, having as my tool a "barlow" pocket knife.

I began by cutting steps in the bank for a foothold. It was then a quarter past one o'clock in the afternoon. By steadily cutting and mounting one step at a time, about four o'clock my face was even with the hole. My knife was worn bright, so using it as a reflector, I threw the sunlight into the hole and saw the other bird sitting apparently on the bare ground about three feet back, blinking at the light. Another half hour's digging made the hole large enough to admit my arm, but I still could not reach the nest; so I climbed down and securing a piece of cornstalk, went back up to the nest. I poked at the bird for quite a while, but

she would not move. Finally she became angry and grabbed the stalk in her bill, thus enabling me to pull her out.

"Success is the reward of perseverance," and you can imagine how glad I was when I again threw the light in the hole and beheld seven snow white eggs lying there.

I presume some of my readers have never seen a Kingfisher's nest, so for their benefit I will give a short description of one. It selects a bank of soft clay, sometimes several miles from a stream, and about one to four feet from the top it digs a hole three or four inches in diameter, inclining slightly upward and running back two or three feet. At the back of this passage is a cavern, or the nest proper, which is about the size and shape of a small inverted wash basin. Very often it makes a turn in the passage before hollowing out for the nest. The eggs, from four to seven in number and pure ivory white, are laid on the bare ground in a slight depression in the center of the nest. The Kingfishers are very dirty housekeepers for they leave all the refuse fish bones, scales, etc., from their food, lying in the nest. Well, to get back to my story.

The most severe part of my undertaking was yet to come. Standing there on a six-inch niche in a crumbly clay bank, twenty-five feet from the ground, I slowly rolled the eggs with the cornstalk to the edge of the hole and placed them in my collection box. But at last I had them all in and was once more on the ground and headed for home.

The clock was striking seven when I stepped in the door, tired out and hungry, but fully repaid for my afternoon's hard labor, for I had a set of Kingfisher eggs, the pride of my collection. The true naturalist and collector places no commercial value on his collection, but rates them according to the rarity of the article and the energy put forth in securing it.

LOUIS P. ZIMMERMAN.



FROM COL. CH. ACAD. SCIENCES.

AMERICAN DIPPER OR WATER OUZEL.
(*Cinclus mexicanus*).

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THE AMERICAN DIPPER OR WATER OUSEL.

(*Cinclus mexicanus*.)

No one who visits the mountainous region of western North America should fail to visit some of the mountain streams with their cascades and pools and there study the antics of the American Dipper or Water Ouzel. The song of this happy bird—voiced even in winter—is well worthy the effort made to hear it. The Dipper loves only the mountains; it is not a bird of the level plains and it may almost be said that it never visits these lowlands, even in the severest weather. Its country extends from the Youkon Valley, on the north, to Guatemala, on the south, and in the United States it may be found from near the Pacific ocean eastward to the base of the eastern slope of the Rocky mountains. Mr. Lord, in his "Birds of Oregon and Washington," says: "We all ought to know the thrice fascinating ways of this bird, which belongs exclusively to our side of the continent."

Our own country is not the only one that is favored with this interesting bird, which belongs to a remarkable group that has sorely puzzled the ornithologist. He has been unable to place it in any family of birds with other species. The Dippers form a distinct family (*Cinclidæ*), which seems to have no very near allies. There are perhaps ten or twelve species which inhabit the mountainous regions of the northern hemisphere.

The name Dipper was first given to this bird by the English ornithologist Bewick, and refers to its habit of standing on some perch and tilting its body in such a manner as to give a nodding motion to its head. Bewick himself says of the Dipper: "It may be seen perched on the top of a stone in the midst of the torrent, in a continual dipping motion, or short courtesy often repeated." Probably because of its habit of seeking food in the

water, as the common crow does upon the land, the Dipper is sometimes called the Water-crow.

The Dipper has been called a "dumpy" bird, but it is surely the opposite of what that word ought to mean. It is a bird of great energy and activity and in the romantic places that it inhabits it seems to delight in leading an observer to following it along the banks of some canyon stream. Chirping, it will hop from stone to stone as the observer follows. With a jerking motion of the tail it will continue leading until it reaches a pool, perhaps formed at the base of a cascade at the upper end of the chasm. Here it will deliberately wade into the water and disappear, to reappear some distance away, and probably on the opposite side of the pool. Mr. Lord says: "It is truly a 'queer' bird, and if one did not know its habits and should some day see him plunge into a swift mountain stream and disappear, he might suppose he had witnessed a case of desperate bird-suicide. But did he know this odd creature's ways, he would look for it to come up and land on a rock at some point quite well below its place of plunge." Not only does the Dipper enter the water for the purpose of gathering food from the bottom of the stream or pool, but apparently also to satisfy its love of water in the pool, "the rushing current and the dashing cascade."

Its nest is also built where not only the parents may enjoy the sound of the falling waters, but also where the young may be trained and fed in the environment which they will occupy ever afterwards. The food of the Dipper chiefly consists of the mollusks and fresh water insects, both in their larval and natural states, that it finds as it makes its way along the bottom by the combined action

of its wings and feet. It also feeds upon insect life upon the shore or that which it may catch upon the surface of the water, as it stands upon some stony perch.

The nest of the Dipper is usually placed in a niche of the rock slightly above the stream or behind some cascade. The materials used vary somewhat and are usually such as are to be found in the immediate vicinity. It is described as a cup-shaped mass of grass and moss lined with dry leaves and fibers. It is covered with a dome of moss arranged in such a manner as to completely cover the nest except for a small opening through which the bird passes in and out. The moisture of the locality keeps the exterior of the nest green, causing it to

look like a tuft of moss—an excellent protection from enemies.

Mr. Cooke, in "The Birds of Colorado," says: "The American Dipper remains near open water all the year. In winter this brings it down to the foothills and larger mountain streams, usually between six thousand and nine thousand feet, but it has been noted clear down to the plains. Common all winter in the Canyon of the Grand River as far down as Glenwood Springs, at about five thousand five hundred feet, it moves back into the mountains as soon as the streams thaw out in April and spends the summer from eight thousand feet to just below the timber-line. There is no record of any nest being found lower than eight thousand feet."

WILD CARROT.

Queen Anne's Ruff.

How was fashioned this white lace
Worthy royal robe to grace?
Truly, it is sheer enough
To have edged a queenly ruff!
Quality alone laid claim
To the quaint distinguished name
Won by this wild gipsy bloom
Weaving on her wayside loom,
Who this fairy web hath wrought,
Delicate as poet's thought.
Thread for thread and line for line
She hath rendered the design,
Wondrous wheel of filmy lace,
In the pattern of her race.
True as any eye may gauge
To her ancient lineage
Swerving not, for praise or blame
We oweth this stray weed the same.
Faithful still to nature's law,
Not a slight, and not a flaw.
Would all workmanship were so
In the human world we know.

EDITH H. KINNEY.

A STORY OF THE LEAVES.

The southern forests give their share of grace and glow of color to the festivals of the North. It was a woman in sore trouble who first thought of using their wealth of beauty for a support. During a yellow fever epidemic in the South her husband, Dr. Kibbee, sacrificed his life in his brave and untiring efforts to save the people. His wife and his young children were left in absolute poverty. It then occurred to Mrs. Kibbee that she might gather the beautiful sprays and clusters of leaves and sell them to northern decorators. They were first bought in small lots at two dollars a hundred.

This little venture has grown to be a great business now. Millions and millions of leaves are gathered for sale. It is the most valuable talent a man or woman can have, to see the true value of common things within their reach and to recognize hidden possibilities—it always brings success.

The graceful maiden's hair fern, and even the stiff, sturdy, green Christmas ferns, the evergreens, cedar, larch, hemlock, holly and mistletoe were already in the market for winter sale. But here was a new and strange thing, leaves as exquisite and rich in color as summer's flowers—it was a new world of beauty opened in the woods of the south. It was the galax or coltsfoot that Mrs. Kibbee first sent, not the starry spikes of flowers, but the heart-shaped, notched evergreen leaves, of so durable a texture that they retain their beauty for a long while. The lustrous green of their first growth has a lovely golden tint in May, but later on they change to rosy pink, and in winter are a rich maroon or wine color. The little colts' foot or shortia, the odd flower that was lost for nearly a hundred years, also shows shining leaves of copper and maroon tints in autumn, and grows beyond Bear's River in great masses. "Wagon loads," says Miss Lounsberry,

"can be taken away without any perceptible change." The leaves of the sourwood turn into a lovely pinkish red, and the soft, pale-green capsules hang thickly on the boughs. Lucothoe is another beautiful shrub for decoration. Its gracefully curved boughs show in autumn the most brilliant colors, varying from crimson to bronze; even the stems are rich with color, and it seems to glow with warm life. One variety of this, well-known in the southern mountains, is more beautiful in foliage than in bloom. The upper buds are a deep red, blending with the deep red leaves, while the lower buds are still green and charming in contrast. The mountaineers gather great loads of it to send to the markets of the North. The cornel trees and tupelos show a wonderful variety of color, both in the berries and leaves of the different kinds. The berries are with some scarlet, with others blue, and yet again white, in contrast with leaves of silvery green, or of bright, red, or of purple.

It is often said that the Japanese first taught us to see the beauty of stems and leaves, but we find in the southern forests of our own country trees and shrubs whose leaves show as great a variety of shape, texture and growth, and as exquisite and glowing colors as those of Japan.

The northern woods also send their greenery to the cities of the South. In New Orleans especially, the common wood-ferns, which do not grow south of Tennessee, are sent down "by the millions from New England in the autumn and are kept in cold storage until wanted." It is a charming exchange that is thus made between the forests of the North and South in order to keep the freshness and beauty of the out-of-door world within our winter homes.

ELLA F. MOSBY.

THE HABITS OF THE KILLDEER PLOVER.

(*Aegialitis vocifera*.)

The Killdee, or Killdeer Plover, is one of the most common and conspicuous of American shore birds. It breeds throughout temperate North America. The plovers belong to the family Charadriidæ, which bear a world-wide reputation as game birds. They inhabit the shores, beaches and margins of both fresh and salt water. Their food consists of mollusks, crustacea, insects and their larvæ which are gathered from the surface of the earth, in either damp or dry places.

Plovers are cosmopolitan in range, many species being common to several continents, and a single bird frequently passes from South America to the ice bound shores of Alaska in its spring migration, returning to the tropical climate of Brazil and the Amazon River in the early fall. Mariners have reported having seen small groups of plovers, sandpipers and phalaropes resting upon the ocean, hundreds of miles from land. This habit would be quite in keeping with the aquatic disposition of the phalaropes, but a person can scarcely imagine such birds as plovers and sandpipers riding the sea waves in a manner that would do credit to some of the most accomplished swimmers among the feathered congregation. This annual flight from the Arctic regions to the equator by water (a feat the shore birds often perform) clearly illustrates the wonderful manner in which some birds adapt themselves to their surroundings by alternating the journey from flying to swimming.

Among the farm lands of the east, on the prairies of the west and in the marshes of the north, have the notes of the Killdeer sounded in my ears, during day and night, especially on moonlight evenings during the spring and summer months.

Often I have witnessed a small group

of these graceful birds, running about the shores of creeks and lakesides, twittering to each other a mellow "Kill-l-l-de-e-e-e-e." Suddenly some member of the tribe would become suspicious, utter a note of warning and the flock would arise in midair, the pure white lining of their long pointed wings showing in beautiful contrast against the blue horizon, as they flew in unison, crying pe-wip, pe-wip, pe-wip. The notes remain audible long after the flock has passed beyond the vision of human eyes.

Cornfields, stubble ground and waste lands are the areas occupied by the Killdeer while mating and breeding, which commences in April, lasting well into June. Although this plover frequently lays her eggs upon elevated ground, at a considerable distance from water, a decided preference is manifested for wet places when migration is in progress.

On April 13, 1901, I spent the day near the Kankakee river, in Illinois. While walking through a pasture I came upon four eggs of the Killdeer, placed in a slight hollow of the sod, on a little knoll, adjacent to a pond. The eggs rested with their points toward each other, on a few bits of grass and stems. They were fresh, and in shape exhibited the pyriform type, typical of plover eggs. The markings were chiefly about the larger end of the egg, and consisted of bold spots and blotches of black, upon a background of ashy gray. This is the earliest breeding date I have observed for the Great Lake region.

As I was emerging from a piece of timber near Chicago, on June 21, 1903, I saw a Killdeer sneaking quietly away through the furrow of a corn field. The mate kept up an incessant calling from the opposite side of the field. He feigned lameness and endeavored in every manner conceivable to attract my attention.



I knew from experience that either eggs or young were close to where I espied the female silently skulking away, and not on the other side of the lot where both birds were raising such commotion. I rather doubted the possibility of finding eggs so late in the season, but I soon discovered four beauties, among a cluster of pebbles, beside a hill of corn. The parent birds had made a slight hollow in the soft black earth, around which they had arranged in an artistic fashion fragments of decayed wood and roots. Surrounded by little stones, the eggs harmonized in

color, and although the nest was in an exposed condition from all sides, they might easily have escaped the eye of the casual observer. This set of eggs have a clay-colored background, upon which large scrawls and pen lines of dark brown and black form peculiar markings over almost the entire surface. They are pear-shaped, very pointed, and are slightly concaved near the small end. Their size is 1.50 inches long by 1.10 inches. This is about normal in size for eggs of the Kildeer.

GERARD ALAN ABBOTT.

MEADOW LARK.

Sturnella Magna.

A creature not too bright and good
For human nature's daily food.

* * * * *

And yet a spirit still, and bright
With something of angelic light.

—WILLIAM WORDSWORTH.

"As gay, as gamesome and as blithe," as Hartley Coleridge's "Certain Goldfishes," the Meadow Lark conveys a mysterious breezy suggestion as of green pastures and still waters, which does not fail of recognition by even the most prosaic of his auditors, while Mrs. Olive Thorne Miller says of him:

"As we turn into the gate another voice strikes our ear, louder, richer, more attention-compelling than any we have heard. Listen; it is the most intoxicating, the most soul-stirring of bird voices in a land where thrushes are absent; it embodies the solitude, the vastness, the mystery of the mesa; it is the Western Meadow Lark. This is his nesting time, and we may be treated to his love-song, the exquisite, whispered aria he addresses to his mate. As I heard it when very close to him, he sings his common strain several times and then drops to a very low twittering and trilling warble, in which now and then is interpolated a note or two of the usual score, yet the whole altogether different in spirit

and execution. He ends by a burst into the loud carol he offers to the world. There is nothing beyond that to hear, even in my beloved nook."

Of the same lark of the West, *Sturnella magna neglecta*, Dr. Allen writes:

"It differs from the Meadow Lark of the eastern states in the notes being louder and wilder, and at the same time more liquid, mellower and far sweeter. They have a pensiveness and general character remarkably in harmony with the half-dreamy wildness of the primitive prairie, as though the bird had received from its surroundings their peculiar impress. It differs, too, in the less frequency of the harsh, complaining chatters so conspicuous in the Eastern bird." And in describing an unusual song of a Baltimore oriole he says: "So much did it resemble a part of the song of the Western Meadow Lark that it at once not only recalled the bird, but the wild, grassy, undulating primitive prairie landscape where I had heard it, and with which the loud, clear, rich, mellow

tones of this beautiful songster so admirably harmonize."

"This bird is abundant in California," Dr. Cooper says, "and resident nearly throughout the entire State. Their songs are lively, sweet and varied. They sing at all seasons, early and late, from the ground, from the tree-top, or in the air, and when unmolested are so tame as to make the house-top their favorite perch. Even the female has considerable musical power, and cheers her mate by singing to him while he relieves her by sitting on the eggs. She also has a harsh, petulant chirp, frequently repeated, as if in anger."

Mr. Ridgway found the Meadow Lark one of the most abundant and characteristic birds of California and all fertile portions of the interior as far east as the Missouri, and remarks that, although closely resembling the Eastern bird in appearance, its song is totally different, not a note uttered by it having more than a distant resemblance to any of the well-known magna of the Eastern meadows. In the depth of its tone and the charms of its articulation its song is hardly excelled, resembling very nearly the song of the wood thrush. Prof. Ridgway describes its modulations as expressed by the syllables tung-tung-tungah-til lah-tung, each note powerful and distinct. The difference between the other notes of the two birds is still greater than in their song, and even in character these are not alike. In the neglecta the call-note of watchfulness or alarm is a loud, deep-toned tuck, similar to the chuck of the blackbird, but much louder and more metallic. That of sympathy for the young, or anxiety when the nest is approached, is a loud, liquid tyur, slightly resembling the complaining note of the eastern bluebird, and also of the orchard oriole. All of its notes are of a power corresponding with the size of the bird.

"A difference in song," Dr. Coues says, "'attested by all observers from Lewis and Clarke down to the present day,' is very curious. * * * It has often occurred to me, and I make the suggestion for what it may be worth, that a different acoustic property of the dry, rarified air of the west may in some measure determine the peculiarity of the

song. In further illustration of this interesting subject, I will quote the remarks of Mr. Trippe, who evidently inclines to keep the two forms apart."

"If this bird is merely a variety of *S. magna*, it is certainly a very remarkable one. * * * Careful observations for the last two years have convinced me of the following facts, viz., that there are two varieties or species of the Meadow Lark in southern Iowa that possess totally different songs and notes, and that these differences are constant. The common lark is here by far the most abundant; its notes are precisely similar to those of the same bird in the east, and its habits, also, nearly or quite the same. The Western Lark, on the contrary, never utters the peculiar, long-drawn whistle of the common species—at least I never heard it—and it has a number of notes which the latter never utters, one in particular which resembles a note of the red-winged blackbird. The Western Lark, like the common species, has a rapid chatter, but so different in every bird that I have heard that the difference was at once appreciable; indeed, it is more striking than the resemblance. I have never heard a bird whose notes were intermediate between the two. Here, then, we have the remarkable fact of two varieties—if they are such—of the same species, existing side by side, seldom or never mingling, and each preserving its peculiar notes and habits; yet resembling each other so closely in form and plumage that the most experienced ornithologists are unable to draw the dividing line between them."

Mr. Maynard, telling of the famous Indian hunting grounds of Florida, which lie south of the Everglades, and where prairies and woods alternate for many miles, says: "The growth of grass on the margins of these plains is low, seldom exceeding six inches in height, and consequently forms the home of countless Meadow Larks, for these birds always exhibit a decided preference for low herbage. The hunting grounds were a perfect wilderness at the time of my visit in 1871, for there was but one settler and he was but newly located in the neighborhood. Thus the birds that occurred there were seldom if ever dis-

turbed, so that I found them exceedingly tame; in fact, they would start up at my feet, fly a few yards and either settle down again in the grass or alight on a low limb of a pine, where they would quietly gaze at me, even allowing me to pass directly beneath them without attempting to move. Then, as if satisfied that I intended doing them no harm, would sound a loud, strange note, which was so utterly at variance with the song of the same species in New England, that when I first heard it I could scarcely believe it was a Meadow Lark. This lay, even in the north, has a peculiar intonation which is quite suggestive of freedom, but that given by the birds which inhabit the trackless piney woods and wide-spread plains of Florida is, although very melodious and pleasing, so wild, clear and ringing, that it is in perfect harmony with surroundings where Nature reigns supreme. When the female is sitting the male lingers near, and seated on some tree, pours forth his loud, clear lay, which is certainly one of the most thrilling and enlivening songs given by any of our birds.

"As we advance northward through Florida, more into the haunts of civilization, we find that the Meadow Larks gradually learn the lesson that all birds acquire sooner or later—the fear of man."

Of the song of the *Sturnella magna*, after it has learned its lesson and become the Eastern Meadow Lark. Nuttall says: "At various times of the day, and nearly through the winter, in the milder states, their very peculiar lispings, long and rather melancholy note is heard at short intervals; and without the variations, which are not inconsiderable, bears some resemblance to the slender singing and affected pronunciation of *et se dee ah* and *pse-dee etsilio*, in a slow, wiry, shrill tone, and sometimes differently varied and shortened. The same simple ditty is repeated in the spring, when they associate in pairs; the female also, as she rises or descends, at this time frequently gives a reiterated guttural chirp, or hurried twitter, like that of the female red-winged blackbird. I have likewise at times heard them utter notes much more musical and vigorous, not very unlike the fine tones of the skylark. But I can by

no means compare our lispingsongster with that blithe harbinger of day. There is a monotonous affectation in the song of our lark which appears indeed somewhat allied to the jingling, though not unpleasant, tune of the starling. About the time of pairing, in the latter end of the month of April, they have a call like 'tship, twee, the latter syllable in a fine and slender tone—something again allied to the occasional notes of the red-winged blackbird, to which genus (*Icterus*) our *Sturnella* is not very remotely allied. Towards the end of June little else is heard from the species but the noisy twitter of the female, preceded by a hoarse and sonorous 'j'imp, accompanied by an impatient raising and lowering of the wings, and in short, all the unpleasant and petulant actions of a brood hen, as she is now assiduously engaged in fostering and supporting her helpless and dependent offspring."

Mr. Burroughs' contribution is: "The bird among us that is usually called a lark, namely, the Meadow Lark, but which our classifiers say is no lark at all, has nearly the same quality of voice as the English skylark—a loud, piercing z-zing; and during the mating season it frequently indulges while on the wing in a brief song that is quite lark-like. It is also a bird of the stubble, and one of the last to retreat on the approach of winter."

Alexander Wilson says: "These birds, after the building season is over, collect in flocks, but seldom fly in a close, compact body; their flight is something in the manner of the grouse and partridge, laborious and steady; sailing and renewing the rapid action of the wings alternately. When they alight on trees or bushes, it is generally on the top of the highest branches, whence they send forth a long, clear, and somewhat melancholy note, that in sweetness and tenderness of expression is not surpassed by any of our numerous warblers. This is sometimes followed by a kind of low, rapid chattering, the particular call of the female; and again the clear and plaintive strain is repeated as before.

"They afford tolerably good amusement to the sportsman."

Mr. Cheney says, like the partridge, the Meadow Lark has favorite places of resort, where he stands and sings or keeps silent as the mood takes him. "Probably our largest singing bird, his voice is neither loud nor deep, some of the tones being rather sharp and weak. He lacks the vocal powers of the robin and of the oriole, a bird of not more than half its size; still his music is very charming.

"The Meadow Lark's song is essentially tender and plaintive. In the dewy morning and toward evening he will stand a long time upon a stump or large rock or rock-heap, singing at intervals little snatches of melody; occasionally, like the oriole and the kingfisher, giving his low, rapid chattering monotones. It is a favorite pastime with him to repeat four tones many times in succession, with rests intervening, sometimes adding to them another strain; and these fragmentary strains, when connected, form an original and interesting song.

"Now and then there is an exquisite, subtle tremor in the notes of this singer, no more to be described than the odor of a rose. It somewhat resembles that in the tones of the Wilson thrush as he trembles along down to the close of his quivering, silvery song."

Mr. Chapman describes the song as a high, musical whistle, "clear as the note of a fife, sweet as the tone of a flute," which William Hamilton Gibson calls that "occasional, piercing shaft of song which seems to cleave the air straight from the hill-side meadow beyond—"I see; I see you." "Who needs," he says, "to prowl among the fence-rails to discover that black crescent and tapering bill of the Meadow Lark, the young sportsman's tempting target and the playful 'cache, cache' of the little French folk of our Acadian country?"

"There is no such element as the rhythmic beat in any bird song that I have heard," Mr. Maurice Thompson says. "Modulation and fine shades of 'color,' as the musical critic has it, together with melodious phrasing, take the place of rhythm. The Meadow Lark in its mellow fluting comes very near to the measure of two rhythmic beats." Mr. Thompson thinks that "the chief difference between the highest order of bird-

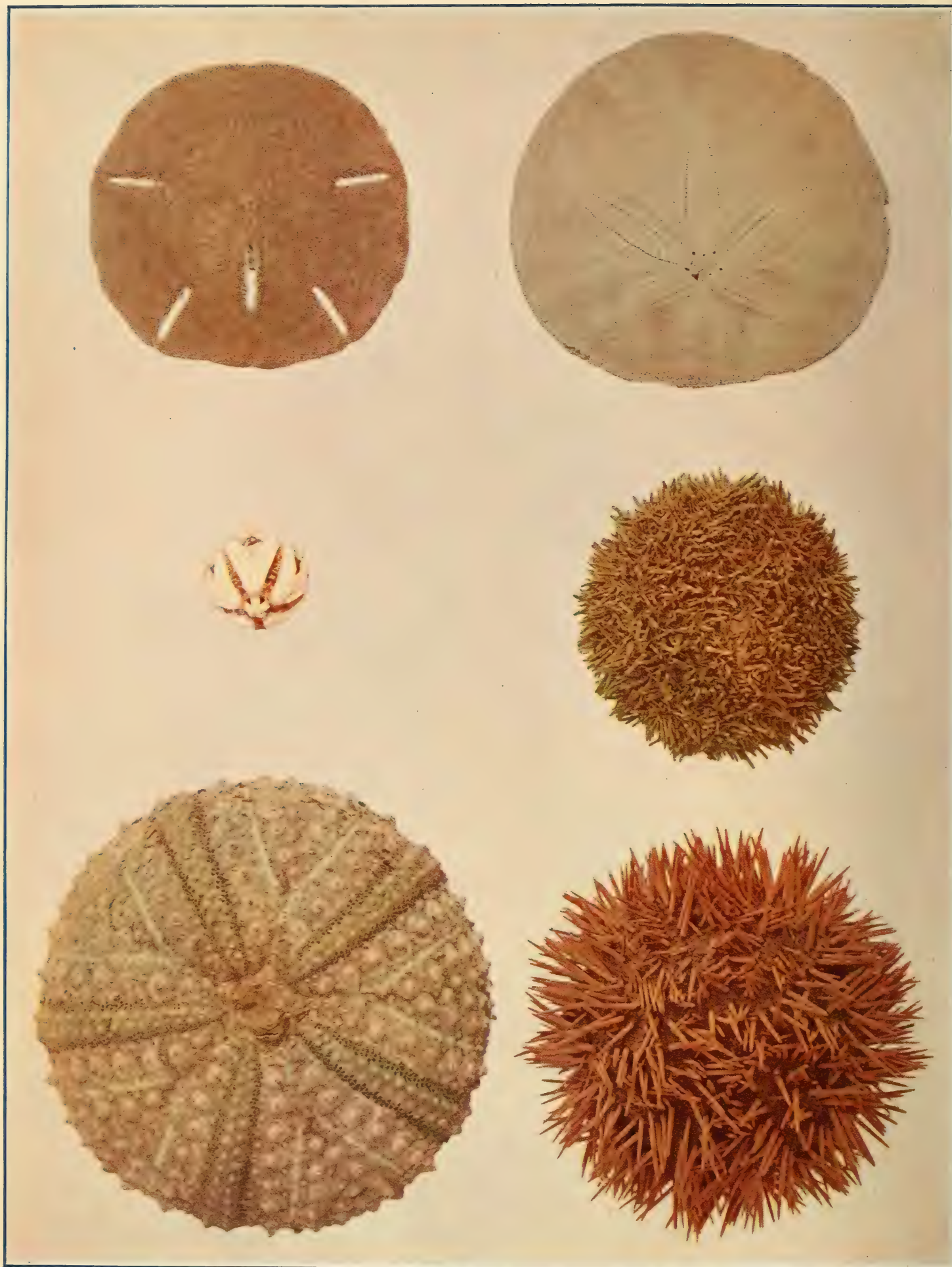
music and the lowest order of man-music is expressed by the word rhythm. The sole opportunity of marking off into "feet" the measure of a bird's rhapsodies was vouchsafed to a brother of Edith M. Patch, the experience being related by her in *Popular Science News*, as follows: "One very cool morning in early summer, my brother, who leaves home about half past five, noticed one of the many little Meadow Larks which perch on the topmost tip of a tree or post and pour out their gracious matins. As it was a frosty morning, the breath of the bird congealed as it left its throat, and lay against the air in wavy little puffs, the visible notes of the warbler's harmony."

Mrs. Wright says they sing from March until July, and then again after moulting, though at this season they never equal their spring song, and she has heard a few notes in January, when they were lingering about the stubble-fields. "It is not a lark at all," she says. "It has superb plumage, and its song, though consisting of but a few syllables, is sweet and thrilling. Almost before a tinge of green has come upon the meadows, these birds are searching for worms and larvæ, which form a large part of their diet, and it is at this time that they show their yellow breasts with the striking black crescent, to the best advantage. Above they are much variegated, with the general color brown. Crown with brown and black streaks, black line behind the eye, tail black with white outer quills, wings edged with yellow; under parts yellow, black crescent on throat. While they are feeding they constantly give their calling song, varying the intonation and accent in a way which is very expressive—"Spring o' the year, Spring o' the year!" It has a breezy sound, as fresh and wild as if the winds were blowing through a flute."

Hence it is evident that the poet meant, if he did not mention, the Meadow Lark, when he announced as the result of his pastoral investigations:

Not an inch of his body is free from delight.
Can he keep himself still if he would? Oh,
not he!
The music stirs in him like wind through a
tree.

JULIETTE A. OWEN.



SEA URCHINS.

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Melita testudinata (Florida).
Aristotle's Lantern.
Diadema setosum (West Indies).

Echinarachinus excentricus (California).
Strongylocentrotus drobachiensis (Massachusetts).
Hipponoe esculenta (Bahamas).

SEA URCHINS AND SAND DOLLARS.

Sea Urchins and Sand Dollars would scarcely seem, at first sight, to be related to the starfishes, yet they are in many respects identical in structure. In the Sea Urchin, the five rays of the starfish are rolled together to form a spherical or flattened disk, which is covered with spines of greater or lesser length. These spines work in a ball-and-socket joint and are capable of considerable movement. The intestine in the Sea Urchins is unusually long and is twisted about in the shell in a manner similar to that of the human intestine. This great length is necessary to accommodate the large quantities of sand which the Sea Urchin swallows to obtain the minute animals which it contains.

In one respect the Sea Urchins are unique, viz., in the possession of a peculiar dental apparatus known as "Aristotle's Lantern." This is composed of five teeth which are operated by a complicated system of muscles. When examined closely, this apparatus is seen to be made up of five triangular pieces which terminate in a sharp tooth, each one being reinforced on the inside by a heavy rib. With these teeth the Sea Urchin is able to dig up quantities of sand containing minute foraminifers and to browse along the rocks which are covered with marine vegetation.

Unlike the starfish, the Sea Urchin is a lover of home, for we find him scooping out great holes in the rocks along the shore in which he lives most of the time, leaving them only when in search of food. The animals love the seclusion afforded by cracks and holes in the rocky shores, and even cover themselves with seaweed, which they pull about them with their tentacles. This instinct of protective adaptation is found in many branches of the animal kingdom and is in many cases the means of saving the species from complete extinction.

The spines of the Sea Urchin are supposed to be principally for protection against its enemies, but in some species they are an efficient aid to locomotion, assisting the ambulacra, or feet, and enabling the Sea Urchin to progress much more rapidly than by means of the ambulacra alone. *Arbacia punctulata*, a common Sea Urchin of the New England coast, uses its spines for this purpose and by a tilting motion advances quite rapidly, the wear and tear on the spines of the lower surface modifying them to a spathiform shape.

In addition to the spines and feet there occur scattered over the surface a number of pincer-like organs, known as pedicellariæ. They are composed of a stem which becomes enlarged near the middle and terminates in a knob-shaped apparatus composed of three parts like a three-pronged fork arranged concentrically; they are jointed, and open and shut at the will of the animal. When closed the forks appear to form but a single acorn-shaped knob, so closely do they fit together.

The general office of these pedicellariæ is not certainly known, but one of their functions is the removal of the waste products of digestion. The rejected particle is received by one of these little pincers and passed by this to the next pincer; this is repeated until the particle reaches the edge of the urchin, when it is dropped off into the water. One may see this rejected matter passing rapidly along the lines upon which the pedicellariæ occur in greatest number, looking like miniature roads for carrying off the waste products.

One of the most abundant of the Sea Urchins is the common green sea-egg or sea-porcupine (*Strongylocentrotus drobachiensis*), which occurs on both the New England and the Californian coast. It is strictly a rock lover and its holes

are frequently found covering wide areas. The spines are generally green in color, but in many varieties they are of a rich purple. When highly magnified these spines are seen to be strongly ribbed.

One of the most interesting sights afforded by a marine aquarium is that of a Sea Urchin turning over when placed upon its back. This is accomplished as follows: First, a few of the feet of the back are thrust out and these cautiously move about, reaching for some solid body to which they may attach themselves. When they come in contact with the floor of the aquarium they immediately attach themselves to it and pull the urchin a little way over; additional feet are now thrust out and attach themselves to the floor. This process is continued until the urchin has been literally pulled over and placed right side up.

It is a curious and significant fact that in almost all branches of the animal kingdom some species serve as food for man. The Echinodea are no exception to the rule and we find several species which serve as food for savages and the poorer classes of Europe and the West Indies. The most important of these are the edible sea eggs of Europe (*Echinus esculentus*) and the edible Sea Urchin of Florida and the West Indies (*Hippocare scutellata*), which is figured on the plate. They do not, however, form very dainty articles of food, for Nature has expended her taste upon the outward appearance of the urchin and left little for the interior.

When a Sea Urchin is denuded of its spines it presents a peculiar spherical or rounded body studded over with knobs, representing the balls which articulate with the sockets at the base of the spines. The species represented on the plate (*Diadema setosum*) is a good example of a denuded test or shell. In the center of this shell may be seen the dark, sieve-like madreporic body leading into the stone canal. Starting from the central area, which is smooth, are the five rays which are plainly marked by the double rows of pores for the extension of the ambulacral feet. Between the two lines of pores the tubercles are small and support small spines, while on the outside

the tubercles are very large and support the larger spines. This species is an inhabitant of Florida and the West Indies, where it is very abundant.

It is generally supposed that marsupials, like the kangaroo and the opossum, are confined solely to the mammals, but it is a peculiar and significant fact that in nearly all branches of the animal kingdom there is a small group of species analogous to the marsupialia of the mammalian class. The echinoids are no exception to the rule and we find in the cooler portions of the South Atlantic Ocean several species of Sea Urchins which develop in marsupia as truly as do the young kangaroos in the pouch of their mothers. In the genus *Hemiaster*, which lives in the waters surrounding the Kerguelen Island, the ambulacral plates are depressed, expanded, or otherwise modified to form four deep depressions in the shell, the spines being so arranged as to form a more or less covered passage from the ovarian opening to the improvised marsupium. The eggs, which are very small, scarcely more than a millimetre in diameter, are passed along this covered tube and laid in rows in the marsupium, where two spines keep each egg in place. The embryos develop quite rapidly and are between two and three millimetres in diameter when they leave the parent. Thus does Nature repeat herself in her different creations.

The sea eggs and sea porcupines are, as a general rule, inhabitants of rocky shores, while the flat urchins, like the Sand Dollars and key-hole urchins, live on sandy beaches in more or less sheltered bays, where they bury themselves in the sand, either wholly or in part. One may see the common Sand Dollar or sand cake in San Diego Bay, California, buried to all depths and at every conceivable angle, and packed so closely together that one wonders how they are able to live in such close proximity.

In the Sand Dollar the shell test is reduced to extreme flatness and we wonder how the animal finds room for itself in such extremely narrow quarters. Not only is the space narrow, but it is even further curtailed by many partitions, which radiate in fan-shape from a central point and which connect the upper and

lower surfaces. The shell is covered all over with short spines, giving it a velvety appearance.

Allied to the Sand Dollar and resembling it in habits is the key-hole urchin, so named from the presence of five slits, four of which are near the edge of the disk, two on each side and one in the center, about midway between the summit and edge of the test. The shell is closely covered with short, hair-like spines. In the common key-hole urchin of the Atlantic coast, *Melita testudinata*, the shell is very flat, the spines are minute and very numerous and are arched over the slits so as to form a sort of roof. The mouth is very small compared with the size of the urchin and the dental apparatus is flat and distinctly star-like in form. The five rays are distinctly marked on the under surface by radiating furrows.

One of the common key-hole urchins of the west coast of America is the *Encope grandis*, an inhabitant of the Gulf of California. It is very thick and solid,

the margins are bluntly rounded and there is but one perforation near the lower side. The margin is cut into by five bluntly rounded nicks or incisions. The five rays are indicated on the dorsal surface by a five-rayed figure composed of as many petal-like structures, which are really the ambulacral furrows and are perforated by many little holes for the protrusion of the water-feet.

The Sea Urchins present an endless variety of forms; some have large shells with short, bristle-like spines, while others have small shells with long spines. These spines also vary from long, needle-like bodies to those which are ornamented by frills, knobs and other curiously shaped protuberances. The Sea Urchins live in all parts of the world, from the tide-washed shore to the abyssal depths of the ocean. They are least numerous in the colder waters of the north, and are most abundant, and also most varied in form and color, in the waters of the tropics.

FRANK COLLINS BAKER.

COMEDY OF THE WINDOW-SILL.

Each morning to my window-sill comes flying through the air
A hasty crew, a hungry crew, to take their breakfast there:
The drop below is sheer and deep, the sill itself is narrow,
But wide enough and safe enough for starling and for sparrow.

The sober-suited sparrow is like other sober folks,
Though quick where profits are concerned, not quite so quick at jokes;
The starling, like a dancing-girl in green shot-silk and spangles,
Flaunts up and down the window-sill and plays the scold and wrangles.

The sparrows—greatly shock'd, of course—can hardly keep away,
For if they breakfasted elsewhere, they might be ask'd to pay,
And so the starlings have the fun of constantly provoking
The simple souls, who never guess that they are only joking.

HENRY JOHNSTONE.

THE BLACK BASSES.

In vain had God stor'd Heav'n with glistring studs,
The plain with grain, the mountain top with woods,
Sever'd the Aire from Fire, the Earth from Water,
Had he not soon peopled this large Theatre
With living Creatures; therefore he began
(This Day) to quicken in the *Ocean*
In standing *Pools*, and in the straggling *Rivers*
(Whose folding Channel fertile Champain severs)
So many *Fishes* of so many features
That in the Waters one may see all Creatures,
And all that in this All is to be found;
As if the World within the Deeps were drown'd.

—"The Birth of the World," Sylvester's Poems, 1605.

To the true fisherman—an Isaac Walton—the Black Bass of the North is a game fish worth his best efforts for its capture. The ordinary fisherman who merely "goes a-fishing" seldom has the pleasure of landing one of these noble fishes. They are pugnacious and in the colder northern waters will "make a fight worthy of the salmon." There are two species, the Large-mouth Black Bass (*Micropterus salmoides*) and the Small-mouth Black Bass (*Micropterus dolomieu*).

Due to the fact that the Basses have a wide geographical range, they have received numerous popular names. In the North, the Large-mouth species is usually called Black Bass, while in Virginia and the neighboring states, it is more frequently called the Chub, and in the southern states it is known by the name Trout. The name Jumper is, perhaps, one of the most appropriate of its common names, and the name is quite as applicable to the Small-mouth species. Every fisherman who is at all familiar with the Black Basses knows full well that they are jumpers, and those who fish by seining have a still stronger appreciation of this habit. "It is almost impossible to capture them with a seine rigged in the ordinary manner, especially when the fish have the vitality and activity which is usual when living in water of moderate temperature." An interesting experience with these fishes is related in a report of the Commissioner of Fish and Fisheries. "On one occasion, when collecting Black Bass on the Holston River, advantage was taken of their jumping habits to ef-

fect their capture. A flatboat twelve feet wide and fifty feet long was procured and in suitable places was rapidly poled broadside from one bank to the other. As it approached the further shore the Bass would leap from the stream and frequently land in the boat, the gunwale of which was cut down to within four inches of the water. One Bass was seen to clear the entire width of the boat, making a horizontal jump of fourteen feet."

The Large-mouth Bass is also known by a number of other names which have less significance. Some of these are Oswego Bass, Lake Bass, Bayou Bass, Green, and Yellow Bass, Moss Bass, and in a few localities of the South it is called Welchman. The Small-mouth Black Bass is also favored with a large number of names, many of which are purely local and need not be mentioned. A few of the more common ones are: Lake Bass, Ninny Bass, Hog Bass, Brown Bass or Trout, Black or Trout Perch and Mountain Trout. Variation in characteristics and habits due to age, geographical location and different climatic influences have led scientists to recognize and name quite a large number of species of Black Basses, but the investigators of more recent years have discarded all but the two specific names, already mentioned, and included all the Black Basses under either the Large-mouth or the Small-mouth species.

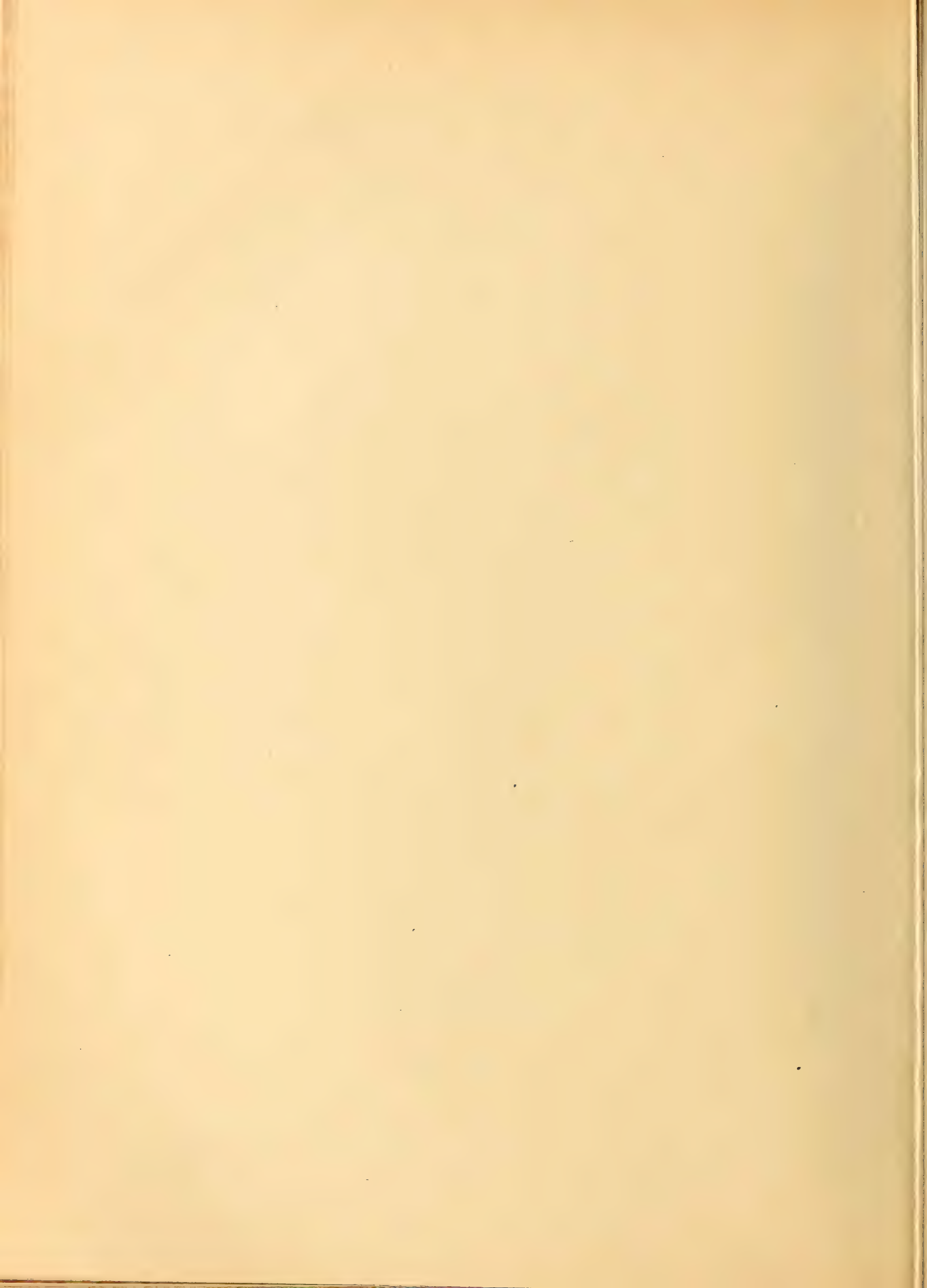
The range of the Large-mouth Black Bass may be considered as covering the larger part of the eastern United States and southern British America, westward to the Dakotas, Nebraska and Kansas.



SPECIMEN LOANED BY RUDOLF MAMM.

LARGE-MOUTHED BLACK BASS.

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That of the Small-mouth Bass, though large, is less extensive, covering a territory "from Lake Champlain to Manitoba, and southward on both sides of the Alleghanies to South Carolina and Arkansas." These are the natural ranges of the two species. They are able, however, to adapt themselves to great extremes of temperature and to adverse conditions. For these reasons, their ranges of distribution have been greatly extended by introduction by human methods into nearly every portion of the United States where they were formerly not a part of the fish fauna. They have also been successfully introduced into fresh waters of Europe. It is said that after the introduction of Black Basses into the waters of Utah, that in three years they became so numerous that thirty thousand pounds were caught and marketed from one lake.

Climate and food have much to do with the rate of growth of the Black Bass. Size is not a criterion of its age. "At the age of five or six months the young Bass measure from four to eight inches, according to locality and surroundings, though a certain percentage of the crop will always run large." The Commissioner of Fish and Fisheries states that "Large-mouth Bass have been known to weigh twenty-three pounds. They are not infrequently taken from the San Marcos River, Texas, weighing from twelve to fifteen pounds, and a six-pound or eight-pound Bass in the southern tributaries of the Mississippi and in the inland lakes of Florida excites no surprise. The Small-mouth Bass does not grow as large, two and one-half pounds probably exceeding their average size, though they occasionally reach five or six pounds."

The Black Basses are exceedingly voracious and are gluttonous feeders. They will attack and devour not only minnows and young fishes of other species, but also smaller individuals of their own kind. They also eat worms, crayfish, the smaller mollusks, frogs and tadpoles. It is also said on good authority that rats and snakes, as well as vegetables, have been found in their stomachs. In spite of their voracious and somewhat cannibalistic natures, the Black Basses are

watchful parents, exhibiting, perhaps, "the highest type among fishes of parental care, guarding their young until after the dispersal of the school of fry."

At the approach of the spawning season, the mated fish begin the preparation of nests. "The nests are ordinarily built in gravel, brushed into neat circular piles from eighteen inches to three feet in diameter, and are usually found in water from eighteen inches to three feet deep, though not infrequently in much deeper water and sometimes in water less than a foot in depth." In some localities, however, the Basses deposit their eggs on mud. The eggs are viscid and heavier than water, so that as soon as they are voided they sink and become attached to the floor of the nest. Mr. William F. Page, Superintendent of the Neosho, Missouri, Station of the United States Fish Commission, says: "Then commences a parental watchfulness worthy of imitation on the part of some higher animals, one fish hovering immediately over the nest and maintaining a gentle motion of the fins for the purpose of keeping the eggs free from sediment, and the other acting as an outer sentinel, patrolling eight or ten feet away. Both male and female show great courage when guarding their eggs and young fry." But as soon as the little fishes begin to leave the home nest, the parental solicitude leaves the older ones and the young must seek shelter not only from their foes, but also from their own parents, who do not hesitate to devour their new-born offspring.

Dr. G. Brown Goode has said: "Any one who has seen these fishes feeding must have been impressed with their immense power of movement. They soon become masters of the waters in which they are placed. Sunfish, perch, trout, young salmon, and even the ravenous pickerel, are doomed. They feed at the surface on moths, flies and frogs; they turn over stones in search of insect-larvæ and crawfish, to which they are very partial. The angler finds them, at the proper seasons, equally eager for fly-hook, trolling-spoon, or still-bait, and always ready for a struggle which puts his rod and line to an extreme test. Their leaps are almost as powerful as those of

the salmon. The negro fishermen of Florida often surround schools of them with their seines; but as the lines are hauled in and the circle grows smaller, the dark forms of the 'trout' begin to appear,

springing over the cork line to the height of five feet or more, and returning to liberty in splashes and jets of spray."

SETH MINDWELL.

MUST THE SNOWY HERON BECOME EXTINCT?

Upon the women of America rests the solution of the following problem—is the Snowy Heron to be absolutely exterminated from the face of the earth, or can the remnant be saved? At fashion's demand the thousands of these harmless and beautiful birds have perished from our borders; only a remnant remains to us.

Nor is this all; the area of the plume-hunter's trail has widened beyond our own desolated shores, and reaches our neighboring nesting ranges of these birds, where thousands formerly congregated, but which are now repaidly becoming depopulated.

Must this vandalism go on in spite of our boasted civilization and humanity? Much has been done to enlighten the public as to the threatened extinction of the Snowy Heron, and also as to the bitter price of each aigrette of commerce—a price in anguish, for every such aigrette costs not only the life of its helpless owner, but that life is given up under most barbarous conditions, the skin containing the aigrette—the wedding plume of the Heron—being torn from the body, the unfortunate bird being left in agony to perish miserably by a slow death of torture.

Why will men soil their hands with such barbarous traffic, and how can women decorate themselves at such a cost? These plumes are only worn by the Heron in the breeding season; it is when the nests are filled with helpless baby

birds that the plume-hunter approaches the colony. He moves cautiously, being careful to be armed with a rifle that makes no noise to alarm the birds, and hides himself well from sight, awaiting the return of some mother to the nest. The very caution of the poor bird, who, before approaching her young, poises herself at some point of outlook, facilitates the deed of death; the plume-hunter has found his opportunity and it is but a moment before the victim is writhing in its death agony.

The report is low; other mothers winging in toward the nests have not heard it. They are unwarned, unguarded—these helpless mothers—and there is for them neither hope nor pity. Our human American mothers must wear the plumes of the Heron, and there are men brutal enough to supply the demand, one plume-hunter alone, with his two or three assistants, boasts of having killed three hundred in one afternoon, at a time when the work of extermination had not depopulated the colonies.

Three hundred birds perishing in anguish in one afternoon, however, does not complete the scene of suffering, for in the nests are the little ones, crying for food which will never be brought; hundreds of little ones whose doom is starvation and whose anguish cries are not unheard by the mutilated, death-stricken little mothers.

GEORGE KLINGLE.

THE AMERICAN WASPS.

A knowledge of the wild life about an American farm adds to the charm of rural life in many directions. Nor is there any department thereof beneath the notice of an intelligent and reflecting person, whether an agriculturist or otherwise.

In the domain of entomology there are many interesting paths which pertain to the economical side of farming. The insect world touches the farmer vitally on every side. Some destroy his labors, while others assist. Some attack his fruit, some his grain, and yet others his pastures and meadows. Yet many are ignorant to a wonderful degree of this study. Not long ago I was invited to talk to several hundred students in a college. In the remarks I suggested that little things were worthy of investigation if for no other reason than for one's own satisfaction. "How many before me of these hundreds know positively how many legs the common house-fly possesses?" After the talk a leading professor came to me and said he did not know, not having given the subject a thought.

It does seem a small business, but the leading entomologist of the government assures the agricultural public that insects annually destroy more than \$300,000,000 worth of the produce of the farms in the republic.

It becomes then a duty even to know our insect friends, as well as to distinguish our enemies. Of the former, among the more active is the entire wasp family. A boy naturally loves honey and will run large risks to obtain it. That was the fix of the writer when a small lad in one of the forest states of the middle west. In his father's clearing were nests of the yellow-jacket, a wasp (*Vespa*), and being anxious to know whether they made honey, he crawled into a large, hollow log where he knew there was a yellow-jacket's nest. The

sting of this insect is very painful and in that log the boy tested it. But he learned what he was after. The nest was there with larvæ (worms) nearly full grown. He saw, after they were settled, how these worms were fed. The wasp brought the soft portion of an insect in its mouth and when in front of the worm chewed it; the worm was notified by titillation and opened its mouth and the wasp spat the food into it. However, nearly all species of wasps live, after maturity, wholly on pollen, honey and honey-dew. This last, while certain plants exude it from their leaves, is chiefly the secretion of lice, which as a rule feed on and damage cultivated plants.

Certain wasps, like the bee, are social in their habits. They live in colonies. The bald-faced hornet is the most distinguished of these. Often have we, all of us, seen them hunting the fly on our porches. When provoked they sting with the force of a bullet. So far as I know, they invariably aim at the face. Only the perfect and imperfect females have stings. All males are like the drones of the beehive, without any weapon, and all males of the wasps perish in winter. It is the female which survives and continues the species. In early summer Madam Bald-face constructs with her mouth a sort of papier-mache from weather-beaten wood, and from other vegetable fiber, and hangs it to a bush. The first hatch are workers which, on maturity, immediately go to work to enlarge the nest. The queen after this simply eats and lays eggs. In the cells the eggs are glued fast and also the young for a while. The worm hangs head down, it also being the big end. Insects of all kinds, the very large majority being pests, constitute the entire food of the worm. Later in summer perfect females and males are hatched. At the first to-

ken of winter, we are told, what larvæ and pupæ remain are dragged out and stung to death.

Another papier-mache nest is one constructed from the same material by a social, long-waisted wasp of the genus *Polistes*. In the long prairie grass of our prairie draws you shall find the nests just sloping on top sufficient to shed the rain, with shallow cells open underneath. I have examined a number in my own fields and am certain the young—larvæ—are fed exclusively on insect food. The difficulty in their investigation are the large, long-waisted fellows, which are very beligerent. I have been stung a number of times on the back of my hands in learning their lesson. But it pays, and that richly. Nearly all wasps of my acquaintance are fond of the codling moth, which they must find by diligently searching behind shagged bark, etc., for the moth is strictly nocturnal.

The codling moth, it is estimated, damages fruit to the value of \$25,000,000 yearly in the United States. It lays and glues its eggs to the apple or pear, only one egg to an apple. As soon as it is hatched the worm crawls to the blossom end and bores down to the core. If the moth finds an egg on the apple it passes it by and looks up one as yet unappropriated. It is a four-winged gray moth about half an inch long in the body. The female lays about fifty eggs during the season. The moth's front wings are dark gray, with lighter mottles. The after wings are fine striped, the stripes converging towards the thorax, where its six legs are.

Some wasps are solitary in their habits. One, a black, banded, medium-sized wasp, delights in a ration of the white grubs which infest our fields and strawberry gardens. Another, a long-waist, commonly known as the Muddauber, builds its clay tubes about dwellings often if unmolested. At the bottom of the tube it lays an egg. On the top of the egg she deposits a bug or fly or plant worm which she has paralyzed by a secretion in her body which, while it ren-

ders helpless the victim, does not destroy its value for food. The worm as soon as hatched commences on the insect next to it and by the time it eats the last one it is ready for the battle of life on its own account. A small black wasp utilizes keyholes and crevices in doors in which to build its "clay tenement." Murdfeldt, a well known and careful entomologist, relates that one of these wasps utilized "some spools of thread standing on the sill of an open window and built her nests in the spindle-holes. As fast as she filled a spool another was supplied and in three days nine spools, averaging three cells to a spool, had been completed. The food stored for its larvæ consisted of various small caterpillars, including several larvæ (worms) of the codling moth which had been stung with sufficient severity to produce paralysis but not death." The cells were but little more than half an inch in depth, but into each six or seven, and sometimes more, worms were crowded, packed with more than human skill. The young wasps thus well fed appeared full fledged "in less than two weeks."

The wood wasps bore into wood and into the pithy stalks of large weeds. As a rule they feed their larvæ with plant lice. I have seen them on young apple trees foraging for leaf-roller lice. It takes a great number of such tiny lice to provision a cell. You will see them, if you are careful, at the roots of corn after the root lice, which you will also find often infest the roots of the philocactus in the window or greenhouse.

It will be readily seen by the foregoing that all wasps are friends to the farmer. The entire genus, from the egg to the mature insect, live chiefly on the insect pests which infest the farm. They are beneficial when as mature wasps they feed on the pollen and nectar of flowers, for this is one of nature's methods of fertilizing the seeds and fruits. To the student of this branch of natural history they are exceedingly interesting, more so, taking all the species together, than any other portion of the Hymenoptera.

EDWARD BAMFORD HEATON.



FROM COL. CHI. ACAD. SCIENCES.

MASKED TRICHOLOMA.
(*Tricholoma personatum*).

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THE MASKED TRICHOLOMA.

(*Tricholoma personatum.*)

The ancient Greeks and Romans considered mushrooms an excellent and delicious article of food, and devoted much time in seeking for the best season and the best localities for gathering the various kinds. They knew that some were poisonous and that others were edible and were cautioned by their students of nature against the indiscriminate collecting of fungi for food. Pliny says: "Among those vegetable productions which are eaten with risk, I shall, with good reason, include mushrooms; a very dainty food, it is true, but deservedly held in disesteem since the notorious crime committed by Agrippina, who, through their agency, poisoned her husband, the Emperor Claudius." In another place he says: "In general, these plants are of a pernicious nature, and the use of them should be altogether rejected; for if by chance they should happen to grow near a hob-nail, a piece of rusty iron, or a bit of rotten cloth, they will immediately imbibe all these foreign emanations and flavours, and transform them into poison." In the days of Pliny it was believed that mushrooms would imbibe the venom of serpents, and he cautions all to be on their guard during the season at which the serpents have not as yet retired to their holes for the winter.

The *Tricholoma* of our illustration is one of the well known edible mushrooms. Many authors of writings on the food mushrooms speak highly of its esculent

qualities. Its taste is pleasant and its flavor may be likened to that of veal. The Masked *Tricholoma* is generally found in rather open woods or on open grassy places in the woods. It is a fall species seldom appearing before the first of September and it is then common, in favorable places, until the time of heavy frosts.

In England the Masked *Tricholoma* is often called Blewits, and Dr. Peck tells us that it is called Blue Stem in France, although in our own country the plant has a more violet or lilac than a blue color. Its solid stem is short and stout and not infrequently bulbous at the base. In color the stem is whitish, tinged with lilac or violet, and when young there are fibrils on its surface which quite disappear as the mushroom grows older. It is the fibrils that gave this plant its generic name, *Tricholoma*, a word derived from the Greek and meaning a fringe of hair. Usually the Masked *Tricholoma* is solitary in its growth, but it is also found in groups or even in clusters of several individuals. When young the cap is convex and quite firm, but as it grows older it becomes flat and flabby, and the margins may become wavy. The margin of the caps of miniature plants is incurved and not infrequently covered with whitish particles or with a fine bloom. The cap varies in color but is generally some shade of tan gradually changing into a pale lilac near the edge.

ELIZABETH WILLIS WOODWORTH.

THE SONGS OF THE WIND.

O listen to the battle-song of the wind,
In the wild of a winter night,
When the shutters bang and the treetops bend,
And the mock-bird's hushed in fright;
For he's a pirate black, and a pirate bold,
And a spirit wild and free—
A heartless knave for the hoarded gold
Of the ragged forestry.

O listen to the wooing-song of the wind,
In the ear of the meek-eyed May,
When the violets bloom and the roses blush,
And the wood-nymphs join in play;
For he's a lover mild and a lover true—
An Apollo Belvidere—
The gentlest knight beneath the blue,
A wandering "Beaucaire."

O listen to the sleepy-song of the wind,
In the time of the sweltering heat,
When the daisies shy and the marigolds
Hide in the waving wheat;
For he's a lazy man and man of rest—
A gentleman of ease—
A loiterer, without zeal or zest,
Just living in the trees.

O listen to the crooning-song of the wind,
In the time of the dreary fall,
When the sere-brown leaves and the sad-voiced streams
Give heed to the death-day's call;
For he's a mourner slow and a mourner sad;
And a sympathizer deep,
Whose fickle heart isn't wholly bad,
Since he weeps with those who weep.

JOHN JORDAN DOUGLASS.

The beautiful is as useful as the useful.—*Victor Hugo.*

BIRDS

AND

NATURE

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BIRDS AND NATURE.

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DECEMBER, 1903.

No. 5

THE LOST NOTES.

Midst glacial mists,
Across the shroud of amethysts
And emeralds sown to dust;
Across the stain and rust
Of footsteps centuries have trod;
Across the new, sweet sod
Of yesterday, and all fair things
Sweeps ever, as the free world swings
Upon her way, a rapture song
Of nature, sweet and strong,
Sways on from shore to shore, from sea to sea,
Now lost, now found across immensity,
But never hushed. The whirl of wings;
The drowsy hum amidst the rings
Of clover in the grass;
The clarion tone across the mountain-pass;
The song above some nest; the morning cry
When day but breaks; the song which drifteth by
At noontide or at night;
The vesper-voice when light
But dies; the lullaby
Where mothers sing and sigh;
The reeds bent low to sing across the brook;
The triumph-song shook
From the heart of forests that survive; the breath of leaves
Bound round in garlands near the eaves;
The rhapsodies of seas,
The fantasies of avalanche—all these
Intone the rapture-song of nature, yet we miss
The martyred song-bird's sweet, lost notes of bliss.

—GEORGE KLINGLE.

THE TREE SWALLOW.

(*Tachycineta bicolor.*)

Along the surface of the winding stream,
Pursuing every turn, gay swallows skim,
Or round borders of the spacious lawn
Fly in repeated circles, rising o'er
Hillock and fence with motion serpentine,
Easy and light. One snatches from the ground
A downy feather, and then upward springs,
Followed by others, but oft drops it soon,
In playful mood, or from too slight a hold,
When all at once dash at the falling prize.

CARLOS WILCOX, "The Age of Benevolence."

The Tree Swallow is not only a beautiful bird, but also a useful sailor of the air, capturing many insects that are detrimental to the agricultural interests of man. Its usefulness is greatly enhanced by a wide range. It is a bird of North America; from the Atlantic to the Pacific Oceans and from the fur countries of the North to the Gulf of Mexico it flies and sails over land and streams in search of food. It is the earliest of the swallows to appear in its northern breeding grounds and the latest to retreat as the season of cold weather approaches. In fact, it seems loath to migrate at all and only flies southward to localities where the climate is such that it can obtain a supply of its insect food. Though some individuals pass the winter in Mexico and Central America, the majority probably remain during that season within the boundaries of the United States.

The Tree Swallow nests practically throughout its range excepting in the southernmost portion. Unlike some of its sister species, this Swallow has not as yet entirely abandoned the nesting habits of its ancestors, but is passing through a change in its choice of home building sites. This is especially true in the East, where the Tree Swallow frequently accepts the hospitality offered by man and rears its young in a bird house, or in a building into which it may enter through some inviting open-

ing in the gable or under the eaves. Its wilder habits still lead it, as a rule, to seek the seclusion of wooded areas near water courses where the trees have been killed by frequent floods. Here, in natural holes caused by decay, or those excavated and abandoned by woodpeckers, the Tree Swallow builds its nest of grasses and straw and lines it with a thick layer of feathers. On this soft bed its young are raised in safety and in the quiet that this bird seems to love so well for its domestic life.

Dr. Robert Ridgway has well described the natural habits of this restless and interesting bird, which is also most appropriately named the White-bellied Swallow, in the following words: "The White-bellied Swallow is an abundant species where there are suitable places for the location of its nests. Some years ago there were many large dead stumps standing in the water in a stagnant pond connected with the Wabash River immediately above the dam at the Grand Rapids, near Mount Carmel, Illinois. This pond consisted of 'back water' resulting from the building of the dam, and the dead stumps were presumably the remnants of trees that had been killed by flooding, since they grew so thickly as to leave no doubt of their having once formed part of the adjacent forest. These dead stumps and snags were perforated by countless woodpecker holes, and in these the White-bellied Swallows had



FROM COL. CHI. ACAD. SCIENCES.

TREE SWALLOW.
(*Tachycineta bicolor*).
Life-size.

COPYRIGHT 1908, BY A. W. MUMFORD, CHICAGO

their nests, as did also many pairs of Carolina chickadees and prothonotary warblers."

The flight of the Tree Swallow is marvelous and wonderfully beautiful. It flies more in circles than do the other swallows, especially at the approach of night, when the flight is much lower than it is earlier in the day. Its flight does not seem to have the velocity of that of the barn swallow nor of the chimney swift, yet it is graceful and suggests the great endurance of the bird. "They skim above the water, hour after hour, frequently uttering a faint squeak, which doubtless expresses their gratification at the capture of a choice morsel, or their disappointment at a failure." Upward or downward, forward and turning, skimming over the water or sailing in curves, its flight is so easy that we may, with Alice Cary, call this little bird a swimmer of the air.

This Swallow, which is easily distinguished from its sister species by the shining greenish black color of its back and the pure white color of the plumage underneath, is very useful in the economy of man. Its food consists almost entirely of insects which it catches most dexterously while on the wing. The large gape of its mouth perfectly adapts it to this method of collecting food. When the insect is caught, and it seldom fails,

the bill is closed with a snap that would seem to indicate exultation over the capture. While many of the insects upon which the Tree Swallow feeds—such as the Hessian fly, the wheat-midge and weevils—are very destructive to vegetation, it has also been shown that it devours a large number of the smaller dragon-flies, insects that are predaceous and are very abundant in grain fields and meadows. It would seem, however, that its destruction of the harmful insects would overbalance the number of useful species that it destroys. In the fall it feeds quite largely upon wild berries.

Mr. Langille writes eloquently of the habits of the Tree Swallow. He says: "Behold it 'skating on the air.' How it dashes along, seemingly almost without exertion, capturing its food or dipping its bill into the glistening stream to drink or washing itself 'by a sudden plunge,' all of which scarcely retards its onward movement. In a moment it is out of sight, or else, rising nearly perpendicularly, it will suddenly shoot across the tree tops with almost lightning speed, performing the most wondrous aerial evolutions as easily as if it were tossed by the winds themselves. The whole domain of the air is the Swallow's home. No path of insect is beyond its reach, and what bird of prey can overtake it? Here is freedom indeed and a life that is one continual recreation."

THE OLD YELLOW HEN.

"I'll have you arrested for cruelty to animals!" cried Margaret, laughingly.

"Not if you want to be invited to camp to eat a chicken dinner," was the reply.

"I don't; when I come I expect to be regaled with bass and pickerel, else what is the use of a fisherman cousin?" she returned.

"You shan't come at all if you make such dreadful threats," he retorted, lifting the reins.

As the loaded camp-wagon jolted out

of the yard there might have been seen, as the story-tellers say, the heroine of this tale, the yellow hen, packed snugly into the end of a length of stovepipe, her head bobbing back and forth as she peered anxiously at the changing prospect. Up the hills creaked the heavy vehicle, the campers beguiling the way with plans for their weeks of freedom in the woods; whatever the feelings of the helpless passenger, thus ruthlessly torn from her home and companions, she made no sign.

After a two hours' climb a glimpse was caught of a lake, one of two lying side by side, called "The Spectacles." Presently the wagon passed through a barway into an open field; crossed it among rocks, sweet fern and berry bushes, to a track cut through the woods. This shortly led them to a grove by the side of the lake, where stood a small board cottage, their summer home. It was already open, and they were greeted with shouts which turned to laughter as the captive traveler was discovered.

"It is too bad!" said the Mother of the Family.

"Pshaw!" replied the Fisherman. "It didn't hurt her a bit, and there really wasn't room to pack her any other way, and you told me to be sure to bring her for Sunday's dinner. Watch her now and see how much she is injured!"

The yellow hen, released from captivity, shook her feathers, deliberately took an observation of the locality, turned about and began to pick up grasshoppers. She was promptly shut in a coop, extemporized from a barrel, and it was supposed her days were numbered.

Sunday arrived, but the Fisherman had been so successful that on the family dinner table a big bass usurped the place of the yellow hen.

"If we are going to keep that chicken another week," announced the Fisherman's wife, "I'm going to let her out of the coop. I believe she will stay around."

So the yellow hen was released, and, being of a philosophical nature, proceeded to make herself quite at home. She not only "stayed around," but rendered her presence agreeable by clucking cheerfully to herself. She chased bugs all day long,

quite disdaining the corn that was thrown to her, and at night went to roost on the limb of a tree near the cottage. In that lonely place, where the nearest camp was at some distance and must be reached by water, the companionship of even a yellow hen with a contented disposition was not to be despised.

"I declare," said the Man of the House on Friday, "seems most a pity to kill that hen, she's having such a good time."

The family assented, but this week the Fisherman reported a scarcity of bass and pickerel, and the Fisherman's wife deplored a lack of variety in the larder; so there seemed no hope of a reprieve.

Saturday morning there was a vigorous cackling in the vicinity of the yellow hen's barrel, and a search instituted in that direction discovered a big, warm white egg in the coop. A conclave was promptly called; an excuse had been found, and the verdict was unanimous; it would surely be a pity to kill the hen that would daily supply them with a new laid egg. As long as she continued to pay her board her life should be spared.

All the remaining days in camp the yellow hen thrived, and when the campers returned home she rode in state in the barrel, for by that time she was considered quite one of the family.

Several years have passed, but the old yellow hen still survives, much respected, and the ornament of the chicken yard. She is far too tough for food, and greatly in demand as the careful mother of large families of chickens, none of whom, however, have succeeded in rivaling her in the esteem of her friends.

The moral of this true tale is that contentment is the best policy.

ELIZABETH MILES DERRICKSON.



THE ROAD RUNNER.

(*Geococcyx californianus*.)

The range of the Road-runner is very restricted and includes the southwestern United States from Texas to the Pacific Ocean. It is also a native of the larger part of Mexico, and it is found as far northward as southern Utah. It is practically a resident of all but the northern portion of its range.

This peculiar bird has several common names, all more or less suggestive of its habits. Some of the more striking of these common names are the Ground Cuckoo, the Chaparral Cock, the Lizard Bird and the Snake-killer. The name Road-runner was given this bird because of its terrestrial habits and the rapidity with which it moves over the ground, where it spends much of its life searching for its food. This consists of insects, snakes, lizards, snails, worms and even small rodents and young birds. It destroys vast numbers of grasshoppers and beetles, and one observer states that he found in the stomach of one a garter snake that was fully twenty inches long.

Major Charles Bendire has given the following excellent account of his observations of the habits of this species: "Road-runners are ordinarily rather shy and suspicious birds, and not as often seen as one would think, even where comparatively common. Within the United States they are most abundant along the southern borders of Texas and Arizona, and in southern California. Notwithstanding their natural shyness, they are inquisitive birds, and where they are not constantly chased and molested will soon become used to man. One of these birds paid frequent visits to my camp, often perching on a mesquite stump for half an hour at a time within twenty-yards of my tent. While so perched it would usually keep up a continuous cooing, not unlike that of the mourning dove, varied now and then by

a cackle resembling that of a domestic hen when calling her brood's attention to some choice morsel of food. This call sounded like 'dack, dack, dack,' a number of times repeated. Another peculiar sound was sometimes produced by snapping its mandibles rapidly together. While uttering these notes its long tail was almost constantly in motion and partly expanded, and its short wings slightly drooped. In walking about at ease the tail is somewhat raised and the neck partly contracted. When suddenly alarmed the feathers of the body are compressed and it trusts almost entirely to its legs for escape, running surprisingly fast. While running it can readily keep out of the way of a horse on a fair gallop on comparatively open ground, and should the pursuer gain too much on the bird it suddenly doubles on its course and takes advantage of any thickets or broken ground in the vicinity, and is soon lost to sight. Its flight is apparently easy, and, considering its short wings, is rather swift."

The fleetness of the Road-runner is shown by the statement of an eye-witness, who, when in southern California, saw one of these birds chased by ranchmen for a distance of a mile or more at a high speed, when the bird, though still in advance, quickly stopped and flew to the branches of a low tree, apparently in an exhausted condition. Though related to the cuckoos, it resembles the pheasants because of its terrestrial habits.

The Road-runner usually nests in rather low trees or bushes and occasionally in the hollow of a dead stump. The nest is usually placed where it is well concealed from view, and it has been known to appropriate the nests of other birds. The body of the nest is usually constructed with small sticks or twigs and lined with finer twigs and dry

grasses. The lining may also consist of dung, feathers, bark fiber, fragments of snake skins and other fine materials that may be found in the vicinity. Sometimes the lining is entirely absent and the eggs are laid on the foundation of sticks.

"The parents are devoted to their young, and when incubation is well ad-

vanced the bird will sometimes allow itself to be caught on the nest rather than abandon its eggs. The nestlings, when disturbed, make a clicking noise with their bills. When taken young, they are readily tamed, soon becoming attached to their captor, showing a great deal of sagacity and making amusing and interesting pets."

THE WHITE-THROATED SPARROW.

A weary, weary wilderness!

What friend is this that hovers near?

"I—I—I—, pea-bod-dy, pea-bod-dy,"

My pulses quicken as I hear.

Some friend long lost but ne'er forgot

Seeks thus to win me with his plea

And, following to the wilderness,

Speaks in the song that comes to me.

O little pearl-voiced bird! one note

Reveals thee, tells me whom thou art,

Voicing the while with quivering throat,

The triple beat of Nature's heart!

Like love's thy notes are softy keyed

With pain—sweetest beside a cross—

As if a sorrowing angel stayed

Its steps to tell us of its loss.

A twig goes trembling as the bird

Forsakes the bough and flutters down—

I see the gilding on thy wings,

The snow that lies upon thy crown!

Then count the wilderness's pulse

In thrice-repeated rhymic note,

I bless thee for thy constancy

O minstrel with the pure white throat!

Or, if I gain the mountain height

Where fir and rock are scattered free,

Still true he woos me with his song,

In breezy triplets calls to me.

O weird, wild melody! a strain

Whose wondrous sweetness none can tell!

Three tears that dropped from Nature's eyes

Thrilling life's harpstrings as they fell.

—NELLY HART WOODWORTH.

BIRD NOTES.

About a year ago I observed a blue jay in a neighboring yard and thought how nice it would be if we could secure him and his mate for daily visitors through the dreary winter. So arming myself with a plentiful supply of crumbs I crossed the road and under the tree where I first saw him I scattered a few crumbs and as I retraced my steps I scattered a few more, and when I reached the window boxes of my own home I covered two of these with the remaining crumbs, as tempting a feast as any bird could wish. The very next morning he came, very shy indeed at first, just alighting for a morsel and then away to a neighboring tree to devour it more leisurely. The next day another came and soon another and another, till in less than a fortnight I had ten of those feathered beauties daily visitors to my windows. Then began in earnest my study of the blue jay. I had always been his friend and could not believe many of the scandalous stories told of him. First I studied his diet. I found he cared but little for corn and oats, but pieces of toasted bread, bits of fat were his especial dainties. One day I put on the boxes the scraps from leaf lard, also some bits of toast. I saw two that morning take a piece of bread, thrust it into the fat until thoroughly besmeared and then fly away. They did this several times. My ten blue jays would, in the course of a few hours, carry away a two-quart measure of scraps of a suitable size. They were also fond of the trimmings of steak, but cared little for lean meat. They came for their daily meal about eight in the morning, and though they took occasional lunches through the day, they never called for food except in the morning. If their call of "Jay, Jay" did not bring their food as promptly as they wished, some of the bolder ones would peck with their bills on the window panes.

One pleasant day I noticed my flock in some trees near the house. Some of them were preening their feathers;

others were hopping from branch to branch and others were busy picking something from the trees. I determined to find out what they were doing and so on examining the tree on which the birds were at work I found little clusters of eggs—caterpillar eggs they proved to be. One great point for my bluebird friend! The birds were not nearly as pugnacious toward the English sparrows or toward each other as are other little pests.

Soon after the middle of February I noticed different notes in the call of one, and I found, too, when he uttered these he would move up and down upon the branch where he rested. It seemed as if the rising and falling helped him in the utterance. It seemed to be a call peculiar to himself and not one he made to mimic another bird.

My flock was very slender and graceful, but before winter was gone many had grown quite portly and assumed a kind of dignity befitting their obesity. As the warm days of April came they returned less and less frequently, and at last we thought our winter friends had flown. Toward the last of the month, one cold bleak day I looked out and the ten beauties were scattered among the branches of the trees, and such a noisy time they had, but discordant as it was, we all enjoyed their farewell visit.

It has been said that the jay lays her eggs in the nests of other birds. I do not think this true, for two bird lovers in my vicinity have seen blue jays' nests. It is not a very elegant affair, but serves its purpose very well.

That he devours young birds, statistics show that among two hundred and eighty stomachs examined only three showed traces of eggs and two of young birds, and it has been shown that he destroys many noxious insects, moths and their cocoons, especially of one that is injurious to grapes.

• BERTIE M. PHILLIPS.

THE ORANGE-CROWNED WARBLER.

(*Helminthophila celata.*)

To those people who reside in the temperate regions of the United States it is a very disappointing law of Nature that takes many of our beautiful and sweet tempered little birds into the far North for the purpose of raising their young. As a result of this natural law it is very difficult for students of bird-life to become acquainted with many of the warblers. Their habits and the characteristics of color and voice must be studied during the periods of northern and southern migrations. The study is rendered more difficult, as they remain but a few hours or a few days at the longest while they are en route. Also, while hurrying along on their journey, they frequent only the foliage of bush and tree, where, hidden from the gaze of the observer, they hunt during the day for their insect food. "Absent to-day, present to-morrow, the warblers come and go under cover of the night, and we may give a lifetime to their study and then know we have not mastered the laws which govern their movements." They are "at once the delight and the despair of field student." Visiting the woods some bright morning in May one may find the trees alive with the busy little warblers. Probably there will be several species; some of them but few in number and rare, while other species will be more numerous in individuals. Here they will spend the day hunting in a happy go-lucky manner, and, though difficult to be seen, they will be betrayed by the simple note which pervades the woods. Dr. Ridgway has said: "No group of birds more deserves the epithet of 'pretty' than the warblers; tanagers are splendid; humming-birds are refulgent; other kinds are brilliant, gaudy or magnificent, but warblers alone are pretty in the proper and full sense of that term."

The Orange-crowned Warbler is one of those warblers which is quite erratic in its appearance in any given locality during its migrations; some seasons it

may be common and in other seasons its presence may not be noted at all. It breeds in the interior of British America, in the Rocky Mountain regions and as far northward as the Yukon district of Alaska. In its migrations it passes through the Mississippi Valley, being very rare in those states bordering the Atlantic Ocean north of Virginia. It winters in the South Atlantic and Gulf States and in Mexico, and is a common species in Florida during this season.

This little Warbler is constantly in motion during the daylight hours in the foliage of the higher tree branches. Seemingly to satisfy its tireless energy, it frequently stops its hunt for insects to utter its simple song. Mr. Ernest Thompson, in his "Birds of Manitoba," describes this song as sounding like chip-e, chip-e, chip-e, chip-e, chip-e, and says: "Its song is much like that of the chipping sparrow, but more musical and in a higher key." To Dr. Wheaton its refrain is a "loud, emphatic and rather monotonous song, resembling, as nearly as he can describe, the syllables, chicky-tick-tick-tick-tick; this song was louder and more decidedly emphasized than that of any member of the genus with which he was acquainted." Colonel Goss hears in the song "a few sweet trills uttered in a spirited manner and abruptly ending in a rising scale."

Its nest is usually built on the ground in clumps of bushes and quite hidden by dried leaves. The nest is large for the size of the bird, and is constructed with plant stems, strips of fibrous bark and dry grasses loosely woven together. Not infrequently also leaves are used in the construction of this outer wall. That the little birds may have a soft bed upon which to lie the nest is well lined with fur and feathers where the

"Blind nestlings, unafraid,
Stretch up wide-mouthed to every shade
By which their downy dream is stirred,
Taking it for the mother bird."



FROM COL. CHI. ACAD. SCIENCES.

ORANGE-CROWNED WARBLER
(*Helminthophila celata*).
Life-size.

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CHRISTMAS WITH THE BIRDS.

It was Christmas week, and Teddy was sick. Teddy was a little brown-eyed, fair-haired girl, christened Theodora May, and the only reason she ever became Teddy was because she had two brothers who went to the high school part of the time, and who during the other part climbed trees, and made engines, and rode their ponies at a furious gait.

It couldn't be expected that two rollicking boys like these could bring their minds to say "Theodora" in a dignified and proper manner, or even "Theo," as Mamma and every one else did. So they called her "Teddy" on the start and the name clung to her ever afterward.

As for the sickness, Teddy was just getting over the measles, and on Christmas week, too! No wonder Teddy was rather doleful, though she tried so hard to be brave. Mamma was just as good as she knew how to be, and read to her stories and brought out all sorts of wonderful things to amuse her.

The Christmas tree which her brothers, Harry and Fred, had decorated for her with such pains, no longer charmed. Although the boys sometimes teased their little sister when she was well, they were as gentle as could be when she was sick, and had expended a great deal of time upon the arrangement of a tree in the little alcove off her room. But it was now the day before New Year's and the tree began to have a worn out appearance such as trees have a way of acquiring after several days have passed. The red tin soldier which graced the topmost bough had lopped over in a forlorn manner and his musket which stood up over his shoulder in a very soldierly style now pointed out of the front window.

"I wish I was a bird instead of a little girl," sighed Teddy as a little chickadee hopped along on the roof of the veranda

under the window. "Then I wouldn't have to go to school, and practice on the piano, and—have measles," she added, as if this were the culmination of all troubles.

"No," added Mamma, "nor have three large dolls for Christmas, or a box of paints, or a Christmas tree, or perhaps any Christmas dinner unless you flew around and found it for yourself."

"Why couldn't we have a Christmas dinner for the birds?" said Teddy, brightening at a sudden thought. "We can have it right out here on the roof of the veranda and invite all the birds in the neighborhood," and she clapped her hands as the plan developed in her mind.

"I think it would be an excellent idea," said Mamma, glad of something to interest her during the remaining day or two of her imprisonment. "You could send the invitation out this afternoon, and make your preparations tomorrow, and have the dinner the next day."

"But it is so long after Christmas," sighed Teddy. "Won't the birds know the difference?"

"Not at all," said Mamma; "in fact, I think it will be all the better, for if I am not surprised we shall have some more snow tonight and they will find it more difficult to find their own dinner, and will be all the more anxious to accept your invitation."

"What shall I do first?" said Teddy, who suddenly became so well one wouldn't know she had ever been sick.

"Write the invitation," replied Mamma, "and it must be done very carefully and written very plainly so they will have no trouble in reading it."

Of course so serious a matter as this required a great deal of time. It was written and rewritten and blotted and copied over so many times that Teddy was quite tired out and glad to be snug-

gled in bed when it was done. But the result couldn't have been improved. It read something like this:

"Miss Theodora May Brent invites all the birds of Oak Lawn to the birds' Christmas dinner Friday, January 2—from daylight until dark—N. R. I. R."

Harry and Fred were very wise and were familiar with all kinds of abbreviations, but to Teddy's surprise had to have it explained to them that N. R. I. R. meant "No Reply Is Required."

When she opened her eyes the next morning her first thought was about her Christmas feast for the birds and it helped her wonderfully through the process of dressing. There was much eager planning and finally Mamma suggested that the abandoned Christmas tree would make an excellent dining table. She would lay the matter before Harry and Fred, and they would have plenty of time to help her. They would strip the tree of its present adornments and arrange it for the birds—for of course birds couldn't be expected to care for tin soldiers, wax candles, or bright colored balls.

"But we haven't sent out the invitation yet. I think that ought to be attended to first," exclaimed Teddy, and while she was eating her breakfast she thought of a most glorious plan. She took her stuffed robin and tied the invitation around his neck with red ribbons. "Now, if we could put him out on the veranda all the birds would see him and not be afraid, and when they came up to make friends they couldn't help but read the invitation," for she had carefully left it unfolded so no bird, however stupid, could fail to see it.

Fred joined heartily in this plan and securing a ladder, he carried the bird out and fastened it in a conspicuous place on the veranda roof.

All that day Teddy was obliged to make numerous trips to the window to see how her plan was succeeding and was pleased to see many birds stop for a short call and a sun bath on the roof and quizzically eye cock-robin, and one even pecked at the ribbons which held the paper. They chirped so unusually loud that Teddy was sure they understood, and one little fellow actually turned to the window and sang a little song. He had noticed the letters N. R. I. R. and his

song said as plain as day, "I thank you for your invitation, Mistress Teddy, and will be very much pleased to come."

Teddy had learned many little arts while in the Kindergarten, so her nimble fingers worked busily all that day making little cardboard boxes and braided baskets which would hold seeds and various kinds of crumbs which Susan, the cook, had agreed to furnish. She had to stop and rest several times but by night everything was finished.

Fred and Harry assisted her in putting them on the tree and when the task was completed Teddy lay back in the big chair with a sigh of relief.

"It looks bare now the strings of popcorn are all off," she said after viewing it with a critical eye, "but I am so tired I can't think of another thing," and her head fell wearily on the arm of the chair.

"I know some little winter elves who will help us decorate the tree," said Mamma as she prepared Teddy for her little white bed, and fed her spoonfuls of bread and milk. "You just whisk into bed and I'll promise that they will work all night," and Teddy was too sleepy to inquire further but fell asleep dreaming of birds and winter fairies and Christmas trees.

"Where are the winter elves, Mamma?" were the first words Teddy said the next morning, "and how are they different from summer elves?"

For reply Mamma raised the shade and there stood the little tree fastened securely to the veranda roof and every bough decorated more beautifully than could be done by human hands with soft feathery flakes of snow. "Oh! how lovely," cried Teddy. "How natural that will seem to the birds."

Then the boys clambered on to the roof and, with Teddy behind the window to give orders, filled every box and basket with seeds and crumbs of bread and cakes until they couldn't be trusted to hold any more.

It had to be done very carefully so as not to dislodge the snow, but finally it was accomplished.

Then Susan brought a half dozen bones with a liberal supply of meat left on, which she had saved for the purpose,

and which some of the birds like best of all.

Then cock-robin was fastened securely to a limb. "For he can be butler," Teddy said, "and make it seem nice and 'homey' to all the birds."

By eight o'clock everything was in readiness. Cock-robin sat sedately on the top bough where the red tin soldier had stood so long, and if the winter birds wondered why he hadn't gone South long before with his mates they were too polite to say so.

The ground was now covered with several feet of snow, and, as Mamma had said, it made seed hunting quite difficult. So many of the birds which usually kept in the fields were forced to go nearer dwellings in hopes of finding a dinner. Besides, the English sparrows, who are such gossips, had told the story of the invitation far and wide, so cock-robin had many callers that day. He never once forgot dignity and stood up stiff and prim, an excellent quality in a butler. He only bowed when the wind blew.

Of course the English sparrows came first of all, and would have eaten up everything if Fred and Harry, who had secured a point of vantage in a neighboring tree, hadn't frightened them so thoroughly with an air gun that they flew away into a park nearby to talk it over and try to decide what it all meant. Here their attention was distracted by other things and they forgot to return until nearly dark.

The first real polite callers were two juncos dressed in suits of gray with low cut vests of white. They pecked timidly in the baskets; then, alarmed at their own boldness, flew away; but, gaining courage after a time, returned and had a great feast. When they left they shook hands with cock-robin and thanked him for his entertainment. Fortunately it was just time for cock-robin to give a bow. Perhaps you think they didn't shake hands, but they shook hands the way

birds do, which is a good and sensible way, no doubt.

The tree sparrows who came next made a great chatter. They all wore a little black breast-pin right on their white shirt fronts and stayed and talked a long time. "Too-la-it," "Too-la-it," they said, which Teddy behind the muslin curtain interpreted as a series of compliments upon the entertainment and cookery.

The chickadees wore black hats and neckties, and said "chickadee, chickadee," so that Teddy knew them at once. They did this instead of leaving a card, as some polite people do at receptions. But the finest dressed caller came last of all, just as they do at real receptions, and I am glad of this, for if he had come earlier he might have made the plainer dressed birds feel uncomfortable.

He wore a suit of rosy red throughout, except a black cravat at the throat, and he did one thing which I am sure you can't approve any more than Teddy did. He let his wife come in an olive green gown, and she looked really quite plain beside her husband. The name of this fine bird was the cardinal, but he did not keep telling it, as did the chickadees. He knew he was so handsome that Teddy would be sure to find out who he was. He occasionally said "tsip," "tsip," which Teddy interpreted to her own satisfaction.

If Teddy had lived in some other place besides Illinois she might have had different guests at her Christmas dinner.

When nearly dark the English sparrows came back, and finished the feast to the last crumb, so Teddy didn't have any work the next day to clear the table. When they had all finished and flown away, Teddy was tired enough to want to go to bed, but Fred had to bring in cock-robin so she would give him a squeeze and ask him if it wasn't the nicest Christmas he ever had. Of course he agreed, so Teddy went to sleep quite contented, resolving in her own mind to have a Christmas dinner for the birds every year.

LAURA MAY BURGESS.

JIM CROW.

As I was planting corn one day last spring, I noticed that crows in the vicinity were much disturbed about something which was in a tree in an adjoining field. I had observed when plowing earlier in the season that the crows took many of the worms, which they gathered from the freshly plowed ground, to this special tree. I concluded that this tree must contain a crow nest. It was my intention to visit this tree, but I was so busy with my farm work that I had not as yet taken time to do so. The tree was a lone cottonwood standing near the center of the field next to the one in which I was working. It was a tree of many years' growth and had attained a large size. There were no low limbs on it, so it would be hard to climb. These limbs had been cut away by the farmer who tended the ground. But when I heard those crows making so much noise and flying about the tree my curiosity got the better of my industry and I left my corn planter, hitched my horses to the fence and set out to see what the crows had found. Climbing the fence, I ran over towards the tree. When I reached its foot I saw a large male fox squirrel on one of the branches. The crows were flying at him. They actually pulled bunches of hair out of his tail; for

they had chased him around and around among the branches until he could run no farther. But he did not like the idea of losing the bushy hair on his tail, for all squirrels are proud of their tails, so he made one more attempt to get away from the crows, but he could not; he then tried to come down the tree to the ground, but when he nearly reached it, he saw me and back he went again.

I then looked over the tree and not very high up I saw a crow's nest. I climbed up to see it, but there was nothing in it. I came down again, and when I had nearly reached the ground I saw a young crow sitting on a lower limb. I climbed out and captured him and taking him down, placed him on the ground. He hopped about a little, but was easily caught again. I soon found another young crow, which had hidden himself in the brush near the foot of the tree. He also was easily caught. Asking permission of the farmer, I took one of the young crows home with me. I showed it to Polly, my parrot, and she said it was "a white chicken," but later concluded it was "a pretty chicken," but Polly is the birdie. I call my pet crow Jim, and now he and Polly are good friends.

PAUL J. CAMPBELL.

THE BLIND.

Some look at Nature's face and lightly say—

"In this what talked-of beauty can there be?"

They look, but in their sordid, selfish way,

They look, ah yes, they look, but do not see!

—JAC LOWELL.



FROM COL. CHI. ACAD. SCIENCES.

WHEATEAR.
(*Saxicola oenanthe*)
Life-size.

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THE WHEATEAR.

(*Saxicola oenanthe*.)

The Wheatear is a remarkable bird because of its extensive distribution. Abundant in both Europe and Asia, it migrates in winter to northern Africa and India. It is also quite common in Greenland, and is found in Labrador. From there it straggles southward to Nova Scotia, and along the Atlantic coast as far as the Bermudas. On the western coast of America it is only found in Alaska. Here its visits are seasonal, and in its migrations it must fly across Bering's Strait and southward through Asia, as it has never been observed in British Columbia, or southward along the Pacific coast. The range of this bird extends nearly around the world, and from far within the Arctic circle to the torrid climes of the equator.

A few of these birds seem to winter in the British Islands, but the majority, having passed the season of severe weather in more southern regions, return to the coast of England early in the spring. They soon leave the rocky shores and fly to the downs and fallow lands. When crossing the water, the Wheatears, in an apparently exhausted condition, often alight upon vessels.

The Wheatear is an active bird, always alert, and is usually in motion. On the ground, and it is decidedly a terrestrial species, it hops rapidly, constantly jerking its tail. When disturbed, it utters a cry like "the syllables peep, chack, chack." For this reason and on account of its predilection for stony places, it is named in most parts of Scotland the "Stan-chack." Because of the white plumage on the rump of the Wheatear it is often called White-rump or White-rumped Stonechat. It is a shy bird, and its favorite resorts are lonely meadows and fallow-lands and other localities little frequented by disturbing creatures. In such places it can easily retreat to the friendly cover of a clod of earth or a stone pile when danger is near.

The male Wheatear has a sweet and lively song, and it is said to be quite successful in its efforts to imitate the notes of other birds. Seebohm says: "The love notes form a short but pleasing song, and the more particularly are we apt to view his performance with favor, because it generally greets the ear in wild and lonely places. * * * Sometimes he warbles his notes on his perch, accompanying them with graceful motion of the wings, and finally launching into the air to complete his song, the aerial fluttering seeming to give the performance additional vigor." It is said that the Wheatear in confinement will sing continually and far into the night.

The nests of the Wheatear are usually placed in wild localities, and are well protected by their natural surroundings. The deep recesses of sea coast rocks and the crevices of old stone walls are favorite nesting sites. Not infrequently its home is built in the loose piles of stones found in abandoned gravel pits. Yarrell writes of one Wheatear that had nested in a bank behind a pile of stones. To reach this spot the bird passed through the "interstices of some rather large, loose stones, as a mouse would have done, and then laterally to a hollow space in a bank, against which the stones were laid; and so deep had she penetrated that many stones had to be removed before we could discover her treasures." But the Wheatear does not always show as much caution in the selection of a nesting site. Sometimes it chooses a deserted rabbit burrow or a space underneath a clod of earth in a fallow-field. The nest is usually constructed with the stems of plants and grasses, and is well lined with feathers and hair.

The Wheatear feeds on worms, small mollusks and insects. Flies are often caught while on the wing, the bird launching forth from its perch on a clod or stone pile and returning after the capture, as do the flycatchers.

Late in the season, when the Wheatear is plump and fat, it is esteemed as an article of food. In former years large numbers of these birds were captured for this purpose. Pennant states that in his time nearly two thousand dozens were annually captured by the shepherds on the downs in the vicinity of Eastborne.

Though the Wheatear is a shy bird, both the male and the female exhibit a great deal of anxiety, and bravely endeavor to defend their nest on the approach of danger. The male is very watchful during the nesting season, and it is said that he performs a part of the duties of incubation.

SOME QUEER TROPICAL INSECTS.

Venezuela presents an almost inexhaustible field for the favorite pursuits of the naturalist and entomologist, where organic life is so exuberant and where there is something to claim his undivided attention at every hour, and at every step.

This is especially true of the vast family of lepidopterous insects and particularly the butterflies, those Nature's fairies, which Spenser has described as "lords of all the works of Nature." In the course of our tropical travels we noticed one variety of even gorgeous coloring, which had the faculty of the chameleon of changing its gaudy colors in an instant to a dull and somber brown. This was done when it was being chased by its enemies. It would swiftly dart around and alight upon the opposite side of a tree, often assuming the exact color of the bark as it did so. Nature has provided it with means of defense to escape its many pursuers. The beautiful peacock butterfly, as well as the regal-robed Emperor butterfly, are among the grandest forms of the Creator's handiwork. They are also noted for the long aerial combats between the males during the season of mating. At such times they will fight as they circle upwards, and in their excitement will soar out of sight.

Like the butterflies, the beetles of this country are innumerable, being always marked by their crustaceous wing cases and an inordinate voracious appetite. One of the most curious and interesting creatures of all the multifold species of the

beetles found in the tropics is the bombardier, which is marked with beautiful metallic green and pitch black colors. It derives its name from a quaint volatile fluid, which it secretes and expels at will whenever alarmed or chased by its enemies. At such times it awaits the proper opportunity till its pursuer is close upon it, feeling certain of the prey, when it discharges a small quantity of the fluid into the enemy's face, which volatilizes and explodes with a miniature report. It is somewhat ludicrous to observe the consternation and confusion of the pursuer when thus surprised by such unexpected artillery. It always enables the bombardier to escape and reach its burrow before the enemy can clear its eyes and recover from the explosion that had frustrated its designs.

Though this curious beetle is very active in movement as well as swift on the wing, it rarely leaves the earth, where it is a rapid runner and easily captures its own prey, which are generally caterpillars and other tree-destroying insects. The males sometimes engage in mortal combats, and then, like the carabus, the victor will devour the vanquished.

The stag beetle, like the hercules and rhinoceros of the same tribe, is a most formidable looking creature, with toothed jaws extending beyond the head, like the horns of a stag. The males are inveterate pugilists, and we frequently observed a miniature ghastly sight of a group of their heads firmly locked in each other's mandibles, while the abdomens and trunks had disappeared. The carabus, or cannibal

beetle, usually devours the whole group when he finds them locked in this helpless condition. The wolf beetle is the king of the species and is naturally a terror to all others. About his burrow you can observe the remains of his cannibal feasts in pieces of wings, legs and other parts he has rejected. They have such strength in their jaws that they retain the power of biting after the head has been severed from the body.

Though possibly not to be classed among insects, the alacran is one of the queer organisms of the tropics. This venomous creature, as Scorpio, has been immortalized in astronomy as the eighth sign of the Zodiac to represent one of the constellations. It has a long body, terminating in a slender tail, with an acute sting which secretes a venomous liquid. The sting of this repulsive creature is very painful and will sometimes cause the loss of speech, if not a torpor of the tongue for fifteen or twenty hours. When it makes an attack it curls the tail over the head and back, biting and stinging at the same time. One curious effect of the sting of the alacran is observed when it attacks the leg of a man, causing the victim to stammer and gurgles for speech, as if he had been suddenly stricken with apoplexy.

There are several species of these poisonous creatures, but the largest and most vicious stinger is one about four inches long and having a dark-green body, with a well-marked stripe leading from head to tail. It is a significant and curious fact that this is one of the few creatures that will not brook captivity. After finding all means of escape impossible, they have been known to deliberately suicide by repeatedly probing themselves with their own venom.

The chigoe or "jigger" is a quaint infinitesimal insect, of a very troublesome character, which is found all the way from Mexico to Paraguay. It has no identity with the red bug, but is a tiny penetrating flea, which is so small as to be almost imperceptible. It usually attacks the feet of man and burrows under the great toe, where it deposits a minute sack of eggs. This causes no other

sensation than a slight itching at first, but in time it becomes dangerous, as, when the nits are hatched, they produce ulcers and running sores. Many evil results—even to the necessary amputation of the limb—have occurred to tropical natives, who neglect the precaution of extracting the egg sack as soon as there is a suspicion of its existence under the nail.

It has been clearly ascertained that many insects secrete equally as powerful poison as the deadliest viper, but their size and minute structure of organs prevents the bite or sting from being attended with the same dangerous or fatal results. There is a certain little arachnidian, however, called the casambulga, which would seem to be an exception. This is a small spider, with a globular black body, about three-fourths of an inch in circumference, beautifully marked with blood red spots. The poison it injects, with its bite, is possibly the most powerful of all the spiders, not excepting the tarantula. When first bitten the victim experiences no pain, but within two or three minutes there ensues excruciating agony, which extends throughout the body. Unless antidotes are immediately available the limbs will become numb, circulation paralyzed and the patient will fall into violent spasms.

There are many curious traits connected with the life and habits of the tarantula, centipede, zancudos, cucuyos, blister beetles, gnats and numerous parasites. The varied species of ants also furnish an inexhaustible mine of interest. The termites, or white ants, are actually a hindrance to civilization, as they ruthlessly devour the most precious papers and documents, often destroying whole libraries. Much of the important data and early history of Spanish America has been thus forever destroyed. The warrior ants (*Formica sanguinea*) are regular slave drivers and exercise great tyranny over many of the weaker species. The vachaco is a large ant, which is often eaten by the natives, who seem to relish the white part of the abdomen. They pinch off this part, mix it with cassava, and preserve it by drying in the sun.

ANDREW JAMES MILLER.

THE HABITS OF THE WILSON'S PHALAROPE.

(*Phalaropus tricolor.*)

The family Phalaropodidæ has a very restricted membership, comprising only three species, two of which are found principally along the sea coasts of the Northern Hemisphere. Wilson's Phalarope, unlike its relatives, is distinctly an American bird. Its range is chiefly inland, extending from the Mississippi Valley and Great Lake Region westward and north into the British provinces.

Few persons aside from those who are closely in touch with Nature can claim even a passing acquaintance with this beautiful creature, the Phalarope. Its soft, delicate plumage consists of various shades of chestnut, black, gray and white, giving an elegant and symmetrical appearance to the bird, which is equaled only by its graceful and gentle demeanor. Fortunate is he who can survive an attack from mosquitoes and venture among the mossy bogs and quagmires to study the Phalaropes in their native haunts. After such a visit one can scarcely refrain from admiring their unsuspicious and peaceful conduct. Well do I remember my initial experience with this little shore bird. It is only one of the many anecdotes which are jotted down in the note book of the field ornithologist, but it formed a vivid impression upon my mind. In company with a friend I was traversing a prairie marsh, near Chicago, where bobolinks and meadow larks abounded. Our destination was a dense copse, resorted to annually by warblers and flycatchers during the breeding season. We were admiring the aerial performance of a marsh hawk, when we were greeted on either side by a male Phalarope and a pair of Bartram's sandpipers.

Both species were entirely new to us in the wild state, and so complete was this surprise that we were unable to ac-

count for their sudden and unexpected appearance. The sandpipers hovered about on quivering wings, continually uttering their long drawn out plaintive yet melodious whistle.

The Phalarope displayed no less an amount of uneasiness as he darted back and forth in an undulating manner. His voice was a feeble "onk, onk," and lacked the distinctness of the Bartram's clear whistle, which was audible at the distance of half a mile. It was about the middle of June, rather a late date for finding eggs of either Phalarope or sandpiper, and after an extensive search we abandoned the place, baffled in our attempts to discover either nest or young.

Several years later, while in North Dakota, I formed a more extensive acquaintance with Wilson's Phalarope, and had the pleasure of meeting not only the male, but his better half. Contrary to the laws of Nature in general regarding other families of the feathered congregation, the Phalaropes possess peculiar characteristics decidedly their own. The female is superior in size and more brilliantly colored than her mate. She also shirks the domestic tasks so far as her sex permits, and the household responsibilities are assumed by the male. Mrs. Phalarope does the courting, displaying her plumage to the best advantage before the shy and indifferent male, who flies from pond to pond. She follows persistently and endeavors by a series of bows and gesticulations to win his favor. The male hollows out a small place in a mossy bog or damp meadow, sufficient to hold four eggs, which are ashy yellow in color and densely marked and streaked with rich brown and black. The eggs average one and twenty-eight-hundredths inches in length by ninety-four-hundredths of an inch in width, and are usually very pointed. Some nests are



scantly lined with grass blades or stems, but, judging from their usual appearance and the exposed situation in which the eggs are often found, I doubt if the male exerts himself when constructing their domicile. Nevertheless he sits patiently upon the eggs until three weeks have elapsed, when the young leave the shell to follow their father about in search of food.

The little fellows are chestnut-brown, streaked with a darker shade.

In the meantime the females have congregated in small groups and may be seen running about the water margin or

swimming buoyantly upon the tranquil surface of pond or lagoon. These birds excel other waders in swimming, because their toes are scalloped, or semipalmated, and well adapted for such purposes.

Twenty years ago Illinois was a favorite summer home for the Wilson's Phalarope, but they are becoming scarce, and from what I can learn, the bird is now regarded as a rare breeder east of the Mississippi River, except perhaps in Wisconsin, where they still gather during June to rear their young around the borders of isolated lakes.

GERARD ALAN ABBOTT.

JACK FROST.

Jack Frost is a sly old fellow.
He always comes in the night
And spreads o'er the landscape and windows
A covering of sparkling white.
An artist is he, so they tell me,
Most wonderful patterns he's wrought
On the grass blades, the sidewalks, the fences,
With a brush he from fairyland brought.

He's an expert, too, I can tell you,
No laggard is he, let me say,
When the sun goes down and the darkness
Steals quietly over the way
He comes, and when no one can see him,
The desolate country about
He changes, as if by magic,
Not a bramble or weed leaves out.

And the day, when it dawns in its splendor,
Looks down on a crystalized land,
While the sun peeping o'er the horizon
Winks at the Frost King's plan,
For he knows if he smiles on the landscape,
As he speeds on his course through the day,
All this beautiful work done in darkness
Will vanish quickly away.

—ADDIE E. BURR.

HOW WE SAW THE BIRDS.

II.

“Man’s reach must exceed man’s grasp,
Else what’s heaven for?”

V.

The last day of May the weather was somewhat more propitious for bird lovers than was May 1. “King-bird day” it was called, owing to the number of those autocratic friends who were seen. To the children it was the day of the strawberry party. They had found wild berries which they picked in glee and which they afterward ate sitting at a park table. The table was laid in green and red, leaves serving both as cloth and as plates, while the decorations were red clovers. Bread and butter sandwiches had been brought from home, hence the feast was all one could desire. After the manner of such functions, it occupied so much time that little was left for studious pursuits. However, upon this day a nest was discovered which for weeks after was the center of interest.

The nest was a delicate little cup, suspended from a small branch of an elm, about twelve feet from the ground, easily visible from the ground; but otherwise concealed by the foliage, which grew denser every day.

The owners of the nest were two trim little birds, olive gray above, cream below, no distinct markings save a black arched line over the eyes. The bills were good length and slightly hooked, and served the birds for obtaining food from the under-side of twigs. The song was clear and loud, not to say shrill—indeed, the voice seemed too big for the bird. All this was not discovered in one visit, but in several.

Upon June 2 the nest contained one white egg, which was discovered by climbing into a neighboring maple tree. Upon June 5 there were three eggs,

which were sat upon at intervals. The instant the female left the nest she was joined by the male—as if they met by prearrangement, as perhaps they did. When they met they flitted round and round each other in merry greeting. The two birds did not hesitate to take low and conspicuous perches, notwithstanding which they were not certainly identified. They were vireos doubtless; but what kind? Their song and plumage proclaimed them to be “preachers” or red-eyed vireos; but where were the red eyes?

Fortunately they were not greatly disturbed at the noise of the children, though some lively games were played with sticks just beneath their nest. One day a dead robin was found on the ground close by and the children moralized for an hour about “the poor robin whose mamma didn’t take care of it.” This view of the situation was as surprising to the children’s mother as it was uncomplimentary, for she had upon a previous occasion made a point altogether different from theirs, telling them that when a dead bird was found it had met death in disobedience, persisting in flying when its parents said it was not strong enough to leave its nest.

June 5 was succeeded by many days of rainy weather, but upon June 12 the bird students undertook a journey to see how their vireos were faring. Being overtaken by a heavy rain the family had to stop under a bridge. The father, however, stole a visit to the pendant nest and brought the comforting news that in spite of floods, nest, eggs and birds were still there.

On June 16, when the observers took their stand, they found the female bird

upon the nest. She remained fifteen minutes and then left the little home for just three minutes. Her companion went thither, standing upon the edge of the nest. For an instant it seemed that he was about to get into the nest, but he did not. This was the first time he had been seen even to touch it, and this was but for a moment. After his mate returned he took her food. He did not sing. Once he drove another bird from the tree. Here were four unusual conditions. What did they signify?

A baby, of course! When the student climbed to get a peep into the home that day the nest was suddenly converted into one great yawning mouth, which so startled him that he almost fell from the tree.

By this time the bird students had four sets of infants to look out for besides their own.

It was not until the tenth visit to the vireo nest that the identity of the bird became settled. On that occasion the observer climbed the tree when the parents were close to the nest. Their alarm was very great. They uttered cries not before heard and came so close to the invader that the red in their eyes was plainly visible. It was quite a relief to the students, who had always believed the ruby color to exist.

The ground beneath that little home became familiar and beloved to the children, who made a garden there, plowing it with sticks and planting with pebbles. As to the red-eyed vireo, they say they have never seen one, but they claim ownership in the nest which on July 1 was carried home attached to the forked branch from which it swung. The little twigs are not more than half the size of an ordinary lead pencil. The nest contained two unhatched eggs; white, thickly spotted with brown.

The children are wondering why the birds did not make little birds out of those eggs. Not being familiar with the laws of society, they are inquiring also why mother cannot climb a tree.

VI.

When in the spring the two enthusiastic bird lovers were watching the movements of a pair of wood-thrushes, they

longed to hear the song of those sweet-mannered birds, feeling that the music from such throats would crown their summer with delight. Before the coming of August, that month of "universal brooding stillness," the longed-for strain—"the golden trillide-de"—had become familiar. It was music of the diviner kind. How often the notes fell upon the ear! But the hearers ceased to be content. They had had a taste of glory and they began to look forward to the vespers of the veery and the holy chants of the hermit thrush—that little angel of the swamp.

There was one outing a happy day in July, when the family spent a day in a country place upon the shores of Lake Erie. At that time they experienced a great disappointment and a great pleasure. A real woods was there, a sort of forest primeval with the wild buffalo and wolves left out. The underbrush and vines were so thick and the hillside so treacherous that when the family started out for an afternoon ramble they had an afternoon scramble instead. The children could not make their way at all and had to be carried. But the birds were there, and, careless of consequences, were alluring the travelers on and on down the slope which they must needs climb again, babies and all.

Catbirds, wood thrushes, vireos, peewees, yellow warblers, rose-breasted grosbeaks, brown thrashers and song sparrows were all there; grouped together now, instead of being separated by miles and days. Here was a catbird's nest with its matchless green eggs, from the branches above swung a vireo's cradle, and there in a bush was a beautiful nest of the warbler type, having in it the egg of a cowbird. Close by flitted and talked two redstarts, male and female, one in a charming suit of black and salmon and the other equally attractive in brown and yellow. (Not a red feather anywhere to excuse the stupidity of calling them red tails.)

Just beneath the redstarts a tawny thrush-like bird was darting in and out of a raspberry bush. The hearts of the beholders stood still! Could it be a veery? They watched breathless, then crept closer to see the nest, which they found about a foot from the ground. It

held three young birds gaping wildly for food.

"We will retreat and watch awhile," said the students, though their burdens were becoming heavy and the mosquitoes had attacked them so fiercely that at every forward step they had said, "We must go back." The little enemies could not be called "no-see-ums"—the name the Indians gave them, for they were giants in size and as bloodthirsty as Bluebeard.

"We must go back," was said again, regretfully, yet each parent lingered, not possessed with the power of decisive action. Suddenly, however, the necessary impetus was given—a serpent hissed at their feet and hesitation ended in headlong haste homeward.

At dusk the bird-lovers, thinking of the evening song of the veery which their ears had never heard, again walked toward the wood; but they yielded to their better judgment and paused upon its border, where they stood for an instant listening to wandering voices and to one

especially whose luring was all but irresistible.

Later in the summer a hasty visit was made and the nest in the raspberry bush was carried away and examined, only to confirm the faith of its possessors that it had been the home of the Wilson thrush or veery, whose valuable acquaintance they had failed to make.

The warblers' nest, which had evidently been abandoned by its builders because of the stray egg, was also taken home. The children insisted upon calling it a cowbird's nest and when the sad character of the cowbird was presented to them they were not morally affected at all, as they were expected to be. The younger child insisted that the cowbird did not know any better—"he got mixed." The little girl hinted that Madam Cowbird was a society lady and she seemed to justify her in wanting somebody else to take care of her children. "Besides," she added in conclusion, "maybe cowbirds really do not know how to take care of babies."

MRS. CHARLES NORMAN.

WHO WOULD HAVE LIFE ALWAYS MAY?

Sweet winds, sunshine, music, flowers—

Ah, could life be one long May,

What a happy world were ours!

But as darkness follows day,

So the gloomy winter lowers

O'er the sunny summer hours.

Yet would summer seem as fair

If the earth were never bare?

And when watching Autumn's death

Quicken under vernal breath,

Does not, then, stern "dust to dust"

Lose itself in sacred trust?

After all, 'tis best God's way,—

Who would have life always May!

—STANFORD CONANT.



THE COMMON GAR PIKE.

(*Lepisosteus osseus*.)

Though nothing that has been created is without some value in the economy of Nature, the fisherman to the manor born often exclaims, "The Gar Pike is a wholly useless fish! Better were the waters if this fish had never been created!" Many fishes have been protected by legislation, but it is seldom that fishes have been doomed to destruction by an act of a legislative body. This, however, happened to the Gar Pikes that formerly lived in the waters of Lake Chautauqua. "In 1896 and 1897, at the request of the Farmers' and Citizens' Game and Fish Protective Association of Chautauqua County, New York, two special appropriations of one thousand dollars and five hundred dollars, respectively, were made by the legislature for the destruction of the Gar Pike or Bill-fish, which were believed to be destroying the young bass and muskallunge in Lake Chautauqua. In 1896 netting for these fish was begun, and was continued in May and on into July, 1897. In 1896 there were caught and killed two thousand six hundred and six Bill-fish. The next year one thousand three hundred and sixteen were killed." It would seem that the Gar Pikes are easily exterminated, for since that time but few of them have been taken from the lake.

The fish that we illustrate is the common Gar Pike of the lakes and rivers of the United States, and is quite abundant, especially in certain districts, from the New England States to Mexico. It is a variable species, and is known by a number of local popular names; it is quite generally called the Long-nosed Gar or the Bill-fish. So variable is this fish that it has been named by a number of authorities who believed the specimens which they studied were representatives of a new species. This has given rise to

a multiplicity of Latin names, which are now considered synonyms of the one given at the beginning of this article.

All the Gar Pikes, of which there are five species, belong to the genus *Lepisosteus*, a name derived from two Greek words meaning bony scales. Four of the species are found only in the waters of North America. The fifth species is found in China. All live only in fresh water; have very sluggish habits, and are extremely voracious and destructive to smaller fishes. The flesh of all Gar Pikes is tough and rank. Though it is usually thrown away as worthless, it is said that some negroes of the South prefer its flesh as a food to that of the cat-fish. The Gar Pikes are of great interest to the geologist, for they are among the few living representatives of prolific orders of geologic ages.

Prof. Alexander Agassiz, who made a careful study of the life history of the Gar Pike, has given an interesting account of the characteristics of its eggs and of the young fish. He says: "The eggs are large, viscous, stick fast in an isolated way to whatever they fall upon, and look much like those of toads, having a large outer membrane and a small yolk.

"The young Gar Pike moves very slowly, and seems to float quietly, save an exceedingly rapid vibration of the pectorals and the tip of the tail. They do not swim about much, but attach themselves to fixed objects by an extraordinary horse-shoe-shaped ring of sucker-appendages about the mouth. These appendages remain even after the snout has become so extended that the ultimate shape is hinted at; and, furthermore, it is a remnant of this feature which forms the fleshy bulb at the end of the snout in the adult."

Champlain, while visiting in 1609 the lake that bears his name, wrote of a large

fish that he observed, which from his description was undoubtedly a Gar Pike. He says: "Among the rest there is one called by the Indians of the country Chaousaron, of divers lengths. The largest, I was informed by the people, are eight to ten feet. I saw one of five as thick as a thigh, with a head as big as two fists, with jaws two and one-half feet long, and a double set of very sharp and dangerous teeth. The form of the body resembles that of the pike, and it is armed with scales that the thrust of a poniard cannot pierce, and it is of a silver-gray color. The point of the snout is like that of a hog. This fish makes war

on all others in the lakes and rivers, and possesses, as these people assure me, a wonderful instinct, which is, that if it wants to catch any birds it goes among the rushes or reeds bordering the lake in many places, keeping the beak out of the water without budging, so that when the birds perch on the beak, imagining it the limb of a tree, it is so subtle that closing the jaws, which it keeps half open, it draws the birds under water by the feet. The Indians gave me a head of it, which they prize highly, saying that when they have a headache they let blood with the teeth of this fish at the seat of pain, which immediately goes away."

SETH MINDWELL.

THE CHAMELEON OF OUR SOUTHERN STATES.

In the first place he is not a Chameleon at all—this little native of the south whom we sometimes see hawked about our northern streets by novelty-venders in the wake of circus parades—who has even been doomed to slavery and fastened by gold manacles to the silken gowns of novelty-seeking women, but who at home among his own green vines and brooding sunshine is a fitting and attractive accompaniment of southern life.

For the true Chameleon we must go much farther, to Africa or Madagascar, or in the case of one species to some parts of Europe or India. We should find him a curiously constructed creature, with a prehensile tail, with toes specially fitted for grasping twigs of trees, with a stumpy horny head almost immovable, but with curious tongue and eyes which make up in intelligence and power of motion—the eyes seemingly able to reach in any direction, and the tongue a long club-shaped arrangement which can shoot itself out for several inches and gather insects on its swollen sticky end.

It is, of course, the chameleon-like power of changing the color of his skin which has given this name to our lizard acquaintance, and as names once given are not easily gotten rid of, it would perhaps not be a bad idea to put him down permanently as the Chameleon-lizard. For he is really a lizard, one of the smallest of the nearly two thousand species known, and in the books he answers to the name *Anolis*. In real life, unfortunately, he cannot answer to any name, nor even to sentiments of any sort, however invitingly expressed, as he is utterly and absolutely without a voice. Still, he has compensations even for this lack.

Judging from our Chameleon's sluggish blood, from the way he has of taking long sun baths on some particular spot of vine or fence, from his finding his way into the house when cold weather comes and spending the winter hidden away in dark corners or perched high up on some window screen or lace curtain, one can imagine him to be a sort of domestic animal, having his home and keeping it, in a cer-

tain locality and attached to both the place and its people.

At least I am ready to believe that the Chameleons of a certain southern garden that I wot of called Hollywood, are quite content and do not care to wander from its luxuriance of vines, its delightful hiding places and its glorious sunshine, living there from year to year, and when the roses have stopped blooming, creeping inside in the hope of warming their cold bones by the roaring blaze of a "fat-pine" log in the great fireplace.

The proverbial domesticity of the Chameleon-lizard is, however, deceptive. He is a contradictory sort of creature. Like some persons, apparently frank and confiding in the extreme, one finds one can go just so far into his confidence and no whit farther. Instinct sends him to the warm corners; but after you have for weeks warmed and fed him, even while lying gratefully asleep in your warm hand, at some sudden motion he will turn his snaky head and eye you as suspiciously as when he first crept in out of the chilly air and hid himself among the curtains.

Still he is not wholly unappreciative, and he has attractions as well as antipathies toward the human kind. I count myself favored, in that, during a somewhat close acquaintance with a certain individual of his kind, I was only once or twice given an exhibition of his red flag of wrath, while on the too near approach of some others the red sac under his throat would immediately appear. I wonder if there was some subtle realization of their feeling of repugnance toward him. This red sac seems to be among the males a sign of irritability. I have seen two chasing each other up and down tree trunks and throwing out their red sac in a most excited and angry fashion. It is probably, too, a device for attracting the females.

The strange power of changing the color of the skin has brought forth all sorts of theories to account for it. It

seems reasonable to believe that there are "two differently colored layers of pigment cells in the skin, so arranged as to move upon each other and produce different effects of color." Also, that the great lung power has something to do with the process. But what is the cause governing this movement, and producing such different effects at different times? It has no connection with the color of the object on which the animal happens to rest, excepting that his color changes are limited to greens and browns, which are the colors of leaves and twigs on which he is oftenest found.

So far as my observation goes, I believe this wonderful power of color change to have been given him as a mode of expression of his emotions and sensations—a sort of compensation for his inability to make a sound. Take him when he is having a fit of the sulks, when his plans have been interfered with or his tail pulled by too inquisitive children, or when he is cold and discontented. Then he is a repulsive looking object with his chocolate-brown coat and an evil look in his eye. Hold him quietly in your warm hand. He will close his eyes, or at least one of them, in contentment, the brown will gradually grow lighter, a green spot or two will appear, and if his confidence in you is firm enough he will after a little be quite green and happy and handsome.

The Chameleon-lizard is of course perfectly harmless, but for that matter so are most of the lizards. The small negro, or even the large one, will roll his eyes in fear at sight of almost any of them. But experts tell us that of all the species only two, and these natives of only our southwestern border states, Texas, New Mexico, Arizona, are poisonous, and that even of these the poisonous qualities are not conclusively proved. So that we need not stop with the Chameleon, but may by a little search find profitable acquaintances among other members of this somewhat unpopular family.

KATHERINE C. PENFIELD.

THE PEAR.

The Pear, like the apple and many other forms of fruit, is an inheritance from remote times and crude beginnings. In a special degree, it is a triumph of the horticulturist's skill. The thorns which covered the trees that originally flourished in Syria, in Egypt and in Greece, have long since disappeared, and the one-time acrid fruit has become metamorphosed into the luscious forms which under many varietal names holds the place of the favorite fruit of modern times.

The Pear was considerably cultivated during the early periods of the Roman Empire, being transplanted into Italy from Greece. Theophrastus writes of the productiveness of old Pear trees and Virgil mentions Pears which he received from Cato. Even in those remote days the varieties under cultivation were numerous. Pliny speaks of many of these, especially of the Falernian Pear, which was especially esteemed for its juice; and the Tibernian, named after the Emperor Tiberius, with whom it was a favorite.

None of these old Roman varieties have come down to us. This is not to be regretted, however, in view of Pliny's remarks that "all pears whatsoever are but a heavy meat, unless they are well boiled or baked." In fact, the really delicious qualities of this fruit were not developed until about the seventeenth century. From among the eighty thousand seedlings raised by Professor Van Mons, who devoted his life to Pear culture, and the thousands of forms coming especially from Belgium, "the Eden of the Pear tree," there have been selected a large number which form the favorite varieties of the present day.

More than to any other source are we indebted to the French Huguenots for the introduction and cultivation of the Pear into this country. Many examples of this early cultivation may still be seen in the old trees in Long Island and New Ro-

chelle, in Michigan and Illinois. The introduction by these people of the French method of propagation upon the quince stock gave an immense impetus to the cultivation of the fruit, as by this process the period of fruiting was reduced from twenty to thirty years to three or four years.

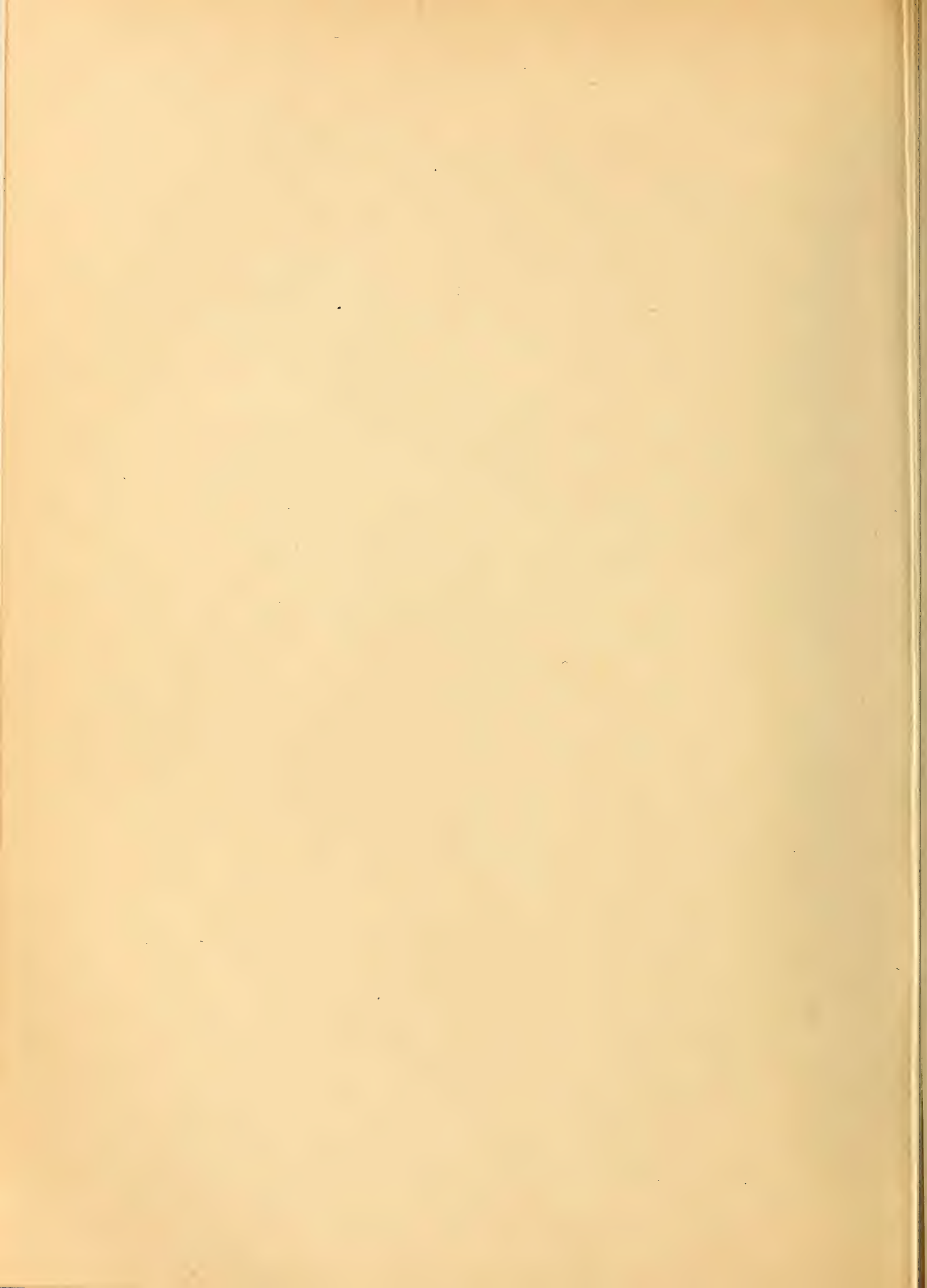
The Pear, like the apple, peach, plum, cherry and many other forms, is referred to the Rosaceae or rose family. It belongs to the genus *Pyrus*, which also includes the apple, the crab apple, the mountain ash and the historical rowan tree. For the most part, the American forms have been derived from the European *Pyrus communis* and the oriental *Pyrus sinensis*. The trees differ in general aspects from the apple tree in possessing a more pyramidal form, in being considerably longer as a seedling plant, and while less hardy, being longer lived. It is propagated by seeds, cuttings, layers, budding and grafting, but its sensitiveness to climatic conditions has materially limited its distribution in the United States. Thus Pear culture has always been precarious in the great interior basin, while the heat of the southern States and the severe winters of the northern prairie areas are unfitted to bring about satisfactory development. The trees do not produce fruit on the wood of former years, but on spurs which grow out of wood less than a year old. On the points of these, buds are formed and flowers are produced, and while many of these fall, such as remain are thus enabled to develop larger fruit.

As a rule, Pear trees are not to any great extent subject to fungus blights. The most common of these is probably the *Roestelia cancellata*, which causes the leaves to become covered with large raised spots, at first yellow, but soon turning red. Cracking in Pears may be due to several causes, the most common being a fungus on the leaves and twigs



PEARS.

(Dwarfed Communion)



which prevents the fruit setting, or if they do set, they are crippled and injured in growth and crack as they ripen. The most serious, however, is the fire blight, which occurs during moist seasons. This is a distinctively American disease, and is caused by microbes which enter the growing points and gradually work down the stem, killing the tissues and causing the leaves to die.

Of the more than seven hundred varieties of Pear trees, some attain to a large size and become hoary with age. A tree in the village of Garmouth, New Brunswick, is over one hundred and fifty years old. Its trunk measures twelve feet in circumference and reaches to a height of forty feet. In one year it produced twenty-eight thousand six hundred Pears. Another tree on the turnpike, between Worcester and Tenbury, England, has a trunk fourteen feet in circumference and fifty-six feet in height. There are Pear trees in France which are said to be more than four hundred years old, and a specimen in the parish of Holm-Lacey, Herefordshire, has yielded fifteen hogsheads of perry or pear cider in one year. Advanced age produces a strong, compact wood, which is much used in making tools, statuary and some kinds of cabinet work. It takes an excellent ebony finish.

It would be strange if trees of such value and age had not been made the subject of myth and story, and while the Pear cannot compete with the apple as a myth producer, yet it has done well when we consider the herpetological record of its sister, the apple, which started in by making trouble for our first parents.

In the first place, the Pear is a fruit of good omen, while the plum and cherry are harbingers of misfortune. To dream of a ripe Pear insures the speedy attainment of great riches, and it was doubtless for either or both of these reasons that

the Roman bride partook of the fruit. Pliny does not state whether or not this bridal Pear was boiled or roasted.

The northern mythology describes a Pear, whose odor caused the writing of inspired verse, while Iduna jealously guarded certain Pears which, by a touch, restored to the aged gods the full vigor of youth.

It is stated on the excellent authority of a mediaeval English writer that in certain parts of Greece there grew "trees which bore small Pears of a white color which contain little living creatures; which shells in time of maturity do open, and out of these do grow those little living things which, falling into the water, do become fowls, which we call barnacles."

Pear cider, commonly known as perry, when too freely imbibed, becomes an intoxicant. This was evidenced during the ninth year of the Peloponnesian war. It appears that the Priestess Chrysis partook of the pear juice for so long a season that she placed torches in too close proximity to the garlands adorning the temple of Juno at Argus, and so reduced the sacred structure to ashes. A series of thirteen paintings in the National Club at Perth illustrates the Hungarian myth of the seasons. Illona, Queen of Summer, is held in thrall by the Queen of Winter. Illona plants a Pear tree—to her a symbol of freedom—in the territory of Argeles, the Earth King, and commits its keeping to the King of the Sun. Winter at once sets a guard around the tree, but the genius of the winds wafts poppy seeds over the eyes of the watchers, and while they sleep the golden fruit is borne away in a swan chariot. The paintings represent the victory of the Sun god, the union of Illona and Argeles, summer and earth and the coming of the harvest of the fruits.

CHARLES S. RADDIN.

A FEW FACTS ABOUT COFFEE.

The average size of a coffee plantation, in Java, is from four hundred to five hundred acres.

A coffee tree begins to bear about the third year. At the fifth it reaches maturity, and continues in its prime for ten or fifteen years. In its wild state, the tree is very tall, but under cultivation, it is not allowed to grow above ten feet. It is also made to assume a pyramidal form—with horizontal branches growing quite to the ground.

Its leaves are oblong, leathery, and evergreen. Its flowers, small, clustered in the axils of the leaf and snow white.

The berries, in shape, resemble an acorn with its cup taken off. In color, they are reddish brown. They are harvested, ordinarily, at the beginning of the dry monsoon, about April or May.

After being gathered the berries are put in the pulping machine and the husk, or outer covering, removed. The coffee is now said to be in parchment; that is, the two lobes of the bean are still covered by a parchment-like skin. In this condition it is washed down in fermenting banks, where it remains for thirty-six hours. After a final washing it is dried in the sun, in large woden trays, running on wheels, or else on concrete platforms.

Most of the Java coffee is sent off to Europe while it is still in the husk, in order that it may present a better appearance in the European markets.

Coffee was not known to the Greeks and Romans, but in Abyssinia and Ethiopia, it has been used from time immemorial.

Towards the end of the seventeenth century it was carried from Mocha to Batavia by Wieser, a burgomaster of Amsterdam, where it was soon extensively planted, and at last, young plants were sent to the Botanical gardens at Amsterdam.

From this the Paris garden obtained a tree, and in 1720 the first tree was planted in Martinique, where it succeeded so well, that in a few years all the West Indies could be supplied with young trees.

The first coffee house was opened in London in 1652, by a Greek, named Pasquet. This Greek was the servant of an English merchant, named Edwards, who brought some coffee with him from Smyrna, and whose house, when the fact became known, was so thronged with friends and visitors who wished to taste the new beverage, that, to relieve himself from annoyance, Edwards established his servant in a coffee house.

In Arabia and the East coffee is not prepared as a beverage in the same way that it is in Europe. A decoction of the unroasted seeds is there generally drunk, and for the Sultan's coffee, the pericarp, with the dried pulp, is employed. The leaves of the coffee are used in the western part of Sumatra instead of the seeds.

They are prepared by quick drying, in a manner similar to that in which the tea leaves are prepared. In this state they contain more caffeine than the bean.

The average consumption of coffee in the United States, according to Mulhall, is two hundred and fifteen thousand tons.

LOUISE JAMISON.



GLISTENING COPRINUS.
(*Coprinus micaceus*).

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THE GLISTENING COPRINUS.

(*Coprinus micaceus*.)

Although bred only from the decay of higher organisms, these mushrooms are not without their own beauty of shape and color.—HUGH MACMILLAN.

While walking through the streets of a country town during the spring, summer or autumn months one is likely to see small mushrooms—toadstools, the country lad will call them—pushing their way upward through the crevices of the loosely laid flagstone or board sidewalk. More frequently they will be observed growing in dense masses by the wayside, usually near an old and decaying stump of a tree. In many instances these mushrooms will prove to be the Glistening Coprinus. From April to November, though more commonly in spring and autumn, they appear, and it is not an uncommon occurrence when a single stump will yield several crops in a season. Sometimes the group of mushrooms seems to grow directly from the earth and are apparently far from decaying wood. However, there is probably a piece of wood hidden beneath the surface of the ground upon which this dependent plant is being nourished.

The clusters of the Glistening Coprinus are frequently very large and contain a number of individual plants. Thus, though the plant itself is small, the whole cluster will furnish quite a harvest. In Europe this Mushroom is not included among the edible forms. Dr. Peck suggests that this may be due to its small size, but its abundance and the ease with which it may be procured compensate for its lack of size. By those who have eaten it repeatedly without harm it is considered a delicacy and not inferior to many other species. When raw it has a flavor of nuts.

The genus *Coprinus*, to which the mushroom of our illustration belongs, in-

cludes a number of species which are commonly called Ink Caps. All are easily identified, for soon after the spores have matured the plates that bear them are resolved into an inky fluid, especially in damp or wet weather. Their life histories are nearly completed while still beneath the surface of the ground. It is only when their spores are quite mature that they seek the air above the surface, pushing themselves out in the night time only to melt away in inky drops during the day. Sometimes when the weather is not damp all the parts may dry and the Mushroom remain well preserved.

It is only when young that the Glistening Coprinus should be gathered for food, and the specimens should be immediately cooked, for they are far from attractive when they have turned black. It is quite easy, even for a novice, to distinguish this Mushroom. All the Ink Caps have an "oblong or nearly cylindrical cap, which does not expand until ready to dissolve in inky drops." The cap of the species of our illustration when young is covered with glistening scales which appear like fine grains of mica, and is buff or tawny yellow in color. The cap is thin, and early in its life is ovate, but later it becomes bell-shaped.

Nina L. Marshall suggests that "Shelley must have had the Ink Caps in mind when he wrote of the fungi in the garden of 'The Sensitive Plant'":

Their mass rotted off them, flake by flake,
Till the thick stalk stuck like a murderer's
stake,
Where rags of loose flesh tremble on high,
Infecting the winds that wander by.

ELIZABETH WILLIS WOODWORTH.

THE MARY SPIDER.

(*Epeira gemma.*)

She was a fine large brown spider with three great brown spots on her back that looked like three huge eyes. She had her web just outside our kitchen window and the whole family took great pleasure in watching her movements and in finding out what she ate.

Her web was a beautiful piece of work almost a foot across, and evidently very well placed, for sometimes she would have as many as a dozen insects in it. Among these little creatures we saw moths, flies, gnats and beetles. No doubt Mary rejoiced in spider fashion to see so much good food all ready for the eating, but sometimes a bird would dart down, eat the captured insects, tear the web in a dozen places and only leave the mistress of the establishment because she was hidden away in a bit of thickly woven web just under the window ledge.

For days after such an attack Mary would have to be very industrious, working on her web in the late evening and we thought during the night, though hiding away during the day time. Even with ordinary luck there was a great deal of work for her in keeping the web mended and cleaned. "A spider has a hard working time," the little girl of the household decided.

It was the little girl who gave her the name of Mary, and soon every one called her the Mary spider.

In the fall she became sluggish and at last gave up housekeeping entirely,

and her web broke loose from its moorings and flapped about in the breezes and at last was blown away.

We watched Mary in her retreat under the window ledge and wondered how long it would be before she would fall a victim to the cold, but she still had an important piece of work to do, and one morning we found her very busy making a web in one corner of the window ledge: this web was very small and closely woven, and in it she placed a great number of small white eggs, and covered the whole with many layers of spiders' silk; then she went about picking up bits of sticks and all sorts of tiny trash, which she stuck on the outside of her nest. When finished the nest said as plainly as could be: "There is nothing here; this is only a trash pile." Mary disappeared soon after this.

On the first of May I noticed that the trash was moving, and a few days later tiny yellow things with the egg skins still attached began to drop through the bottom of the nest. Such a great number of them!

"Whatever shall we do with so many of Mary's children?" the little girl asked; "we'll never be able to tell which is which."

There must have been several thousand at first, and it is curious to think that by one accident or another only two or three will ever reach full size.

WILMATTE PORTER COCKRELL.

SOLITUDE.

There is a pleasure in the pathless woods;
There is a rapture on the lonely shore;
There is society, where none intrudes,
By the deep sea, and music in its roar;
I love not man the less, but Nature more.
From these our interviews, in which I steal
From all I may be, or have been before,
To mingle with the universe, and feel
What I can ne'er express, yet cannot all conceal.

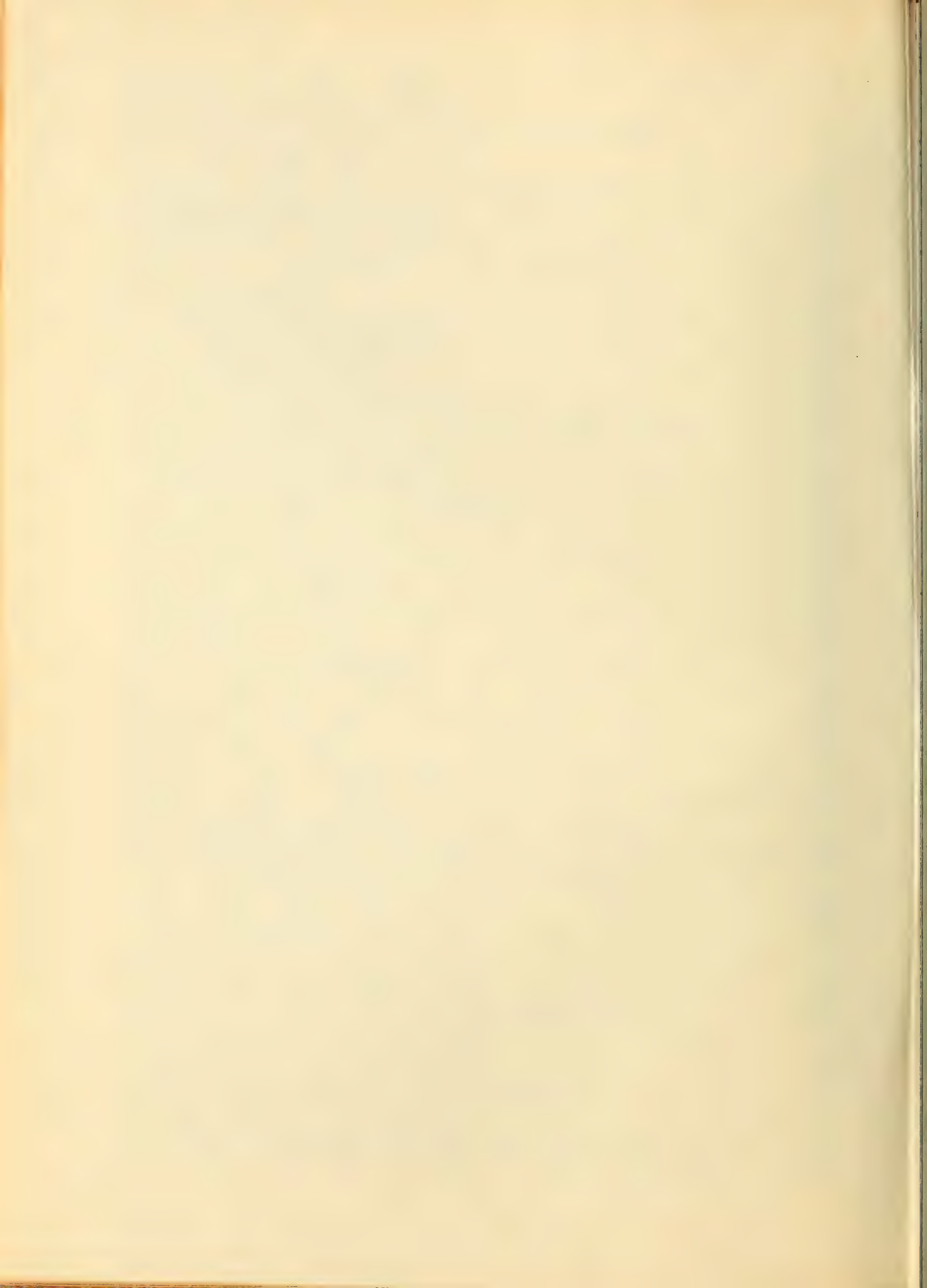
—LORD BYRON.

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